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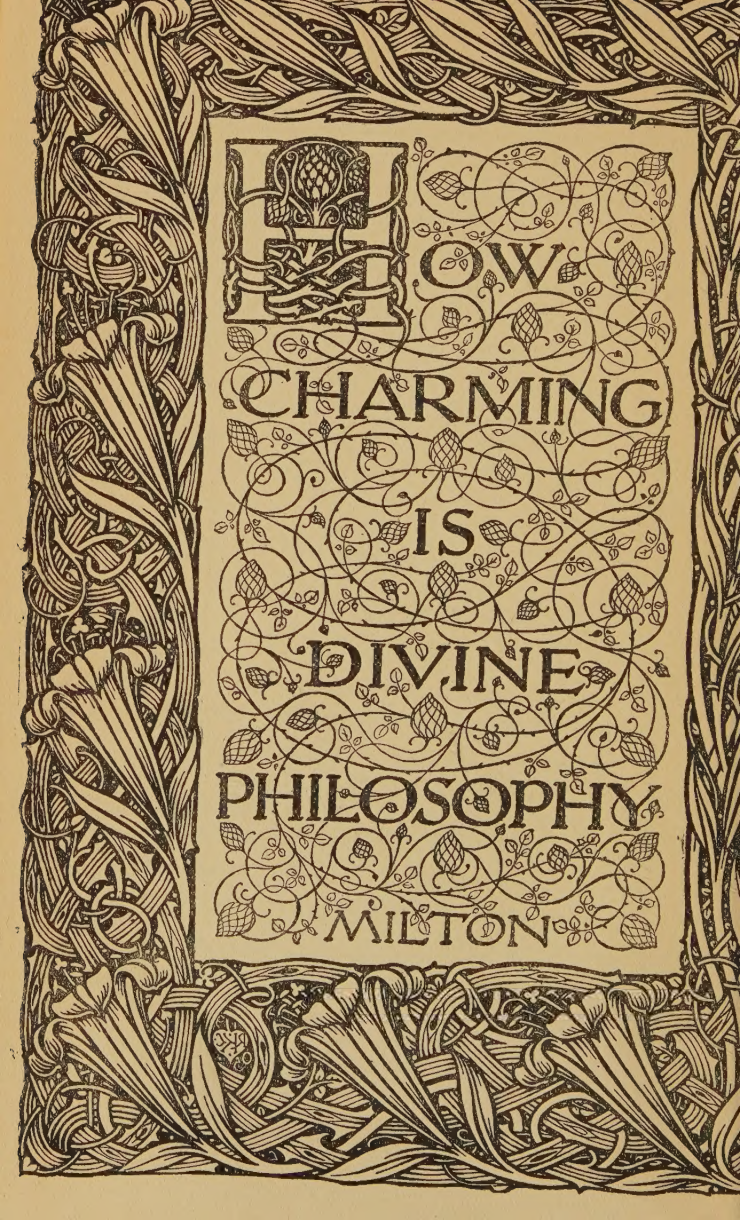
HOW
CHARMING
IS
DIVINE
PHILOSOPHY
MILTON

AN ESSAY ON POPULATION

BY THE REV. T·R·MALTHUS

VOLUME ONE

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INTRODUCTION

It has been justly remarked that few writers have been so much discussed as Malthus by persons who have never read his works; few men have been so violently abused both by his own and by subsequent generations; and few, needless to say, have been so hopelessly misrepresented. No one, among classical writers, therefore, has a better claim to speak for himself through the pages of the Everyman Library.

Malthus's *Essay on Population*, which was first published anonymously in 1798, arose out of a discussion with his father on the social philosophy expounded by Godwin in *Political Justice* and in the pages of the *Enquirer*. Godwin appears to have been influenced by Rousseau and other French writers of the Revolutionary era, and strongly believed in the power of human reason to bring humanity to a state of perfection. Like his more famous successor, Robert Owen, he maintained that the evils of society were due to human institutions, and in particular to the existence of private property. In a society free from these hindrances there would be an abundance for everybody, and all reasonable needs would be satisfied if every one worked half an hour a day. In his system of communistic anarchy, where each would receive according to his needs, vice and misery, which flourish on selfishness and greed, would disappear.

But to Malthus this very idealistic theory ignored some of the most fundamental traits in human nature; and, in particular, would inevitably come to grief by reason of what he called the "principle" of population. The doctrine that will for ever be associated with his name declares that there is a universal tendency for population to outrun the means of subsistence. In the state of society imagined by Godwin, the removal of the restraints of marriage and the abolition of the necessity for parents to make provision for their own children would cause so rapid an increase of numbers that the society would soon be reduced to starvation. The theory as it first presented itself to Malthus's mind is most clearly enunciated in the opening chapters of the first edition. "I

think," he says, "I may fairly make two postulata. First, That food is necessary to the existence of man. Secondly, That the passion between the sexes is necessary, and will remain nearly in its present state." The former need has never been questioned, and though Godwin conjectured that the passion between the sexes might in time be extinguished, there was no evidence that any progress had or was likely to be made in this direction. "Assuming, then, my postulata as granted, I say, that the power of population is indefinitely greater than the power of the earth to produce subsistence for man." The argument is then amplified by an appeal to numbers. "Population, when unchecked, increases in a geometrical ratio. Subsistence only increases in an arithmetical ratio. A slight acquaintance with numbers will show the immensity of the first power in comparison with the second." This illustration, which will be found more fully elaborated on page 10, has been justly criticised on the ground that the seed of animals and plants is also capable of increase in geometrical ratio under favourable circumstances, and obviously there is no fundamental difference in this respect between man, animals, and plants.

But the argument does not rest for its validity on this question of ratios. Animals and plants are prevented from attaining their full potential increase, the latter by lack of space, the former by lack of food. "The race of plants and the race of animals shrink under this great restrictive law. And the race of man cannot, by any efforts of reason, escape from it. Among plants and animals its effects are waste of seed, sickness, and premature death. Among mankind misery and vice." These checks to population were subsequently analysed in detail; those which prevent an increase of births being distinguished from those positive forces, such as war, famine, and pestilence, which reduce the numbers of the already existing population. The exposition concludes with these emphatic propositions:—"That population cannot increase without the means of subsistence is a proposition so evident that it needs no illustration. *That population does invariably increase where there are the means of subsistence, the history of every people that ever existed will abundantly prove.*"

I have italicised this last sentence because it is the point around which controversy turns. Malthus here asserts as a fact that population always increases up to the limits of the means of subsistence. The important question is whether it

must always necessarily do so; and to this Malthus replied in 1798 with an emphatic affirmative.

One of the important practical conclusions that Malthus drew from his theory was a sweeping condemnation of the existing Poor Law system which, with its indiscriminate doles and bonuses on large families, actively encouraged an excessive increase among the poorest of the population, and so made the poverty worse than before. "I feel little doubt," he says, "in my own mind, that if the poor laws had never existed, though there might have been a few more instances of very severe distress, yet that the aggregate mass of happiness among the common people would have been much greater than it is at present." For such a startling and apparently paradoxical conclusion Malthus was, of course, violently attacked as callous and inhuman; but there is little doubt that he was justified in his main contention that the laws were helping to create the problem they were intended to solve. In his opinion, the only radical cure for the profound distress at this time of war, famine, and poverty was a restriction of the immense increase in the population. He suggested, however, that for the relief of the immediate distress, three palliatives might be tried. 1. All the existing parish laws, and in particular the laws of settlement, should be swept away. "This would at any rate give liberty and freedom of action to the peasantry of England, which they can hardly be said to possess at present." 2. "Premiums should be given for turning up fresh land, and all possible encouragements held out to agriculture above manufactures and to tillage above grazing"—a policy which had much to be said for it at a time when there was no prospect of getting large supplies of food from abroad. 3. For cases of extreme distress country workhouses should be established. "The fare should be hard, and those that were able, obliged to work. . . . They should not be considered as comfortable asylums . . . but merely places where severe distress might find some alleviation." Students of English history will recognise to what a large extent these three suggestions became embodied in the subsequent policy of this country.

The author recognised that his general theory was a profoundly pessimistic one. "The view," he explains, "which he has given of human life has a melancholy hue; but he feels conscious, that he has drawn these dark tints, from a conviction that they are really in the picture; and not from a jaundiced

eye, or an inherent spleen of disposition." He was therefore led to raise the whole question of the purpose of pain. "Evil," he declares, "exists not to create despair, but activity. Nature sends all sentient creatures through a long and painful process by which they may gain new qualities and powers, presumably fitting them for a better place than they have in this world." The Essay thus concludes with an attempt to reconcile the suffering caused by the principle of population with the goodness of God.

The *Principle of Population*, though specially pertinent to the conditions of the time, profoundly influenced the whole trend of subsequent thought, and is the classic exposition of a question which must always remain one of profound social significance. But its publication not unnaturally brought about the author's head a storm of criticism and opprobrium. As a result of the discussion which ensued, Malthus published five years later a second edition of the Essay which was really an entirely new work.[1] In order to establish his case beyond dispute, an immense amount of historical evidence was brought forward dealing with all countries of the world. The philosophical discussion of the problem of evil was omitted, and instead of being a vigorous, clear, and concise exposition of a specific argument, it became a scholarly dissertation on the facts relating to population. The most significant change, however, was the recognition of the possibility of "moral restraint" as an effective check to population. The far-reaching character of this admission was perhaps not entirely realised even by Malthus himself; but at all events it enabled him to meet such critics as Mr. Grahame, who remarks that "others, of whom Mr. Malthus is the leader, regard the vices and follies of human nature and their various products, famine, disease, and war, as *benevolent remedies* by which nature has enabled human beings to correct the disorders that would arise from the redundance of population which the unrestrained operation of her laws would create." To this, Malthus replied that he could not be accused of regarding vice and misery as remedies for evils instead of the very evils themselves. "I have never considered any possible increase of population as an evil, except as far as it might increase the proportion of vice and

[1] The text which follows is printed from the Seventh Edition; but though some additions and corrections were subsequently made, the form of the argument and the structure of the Essay remained substantially the same as in the Second Edition.

misery. Vice and misery, and these alone, are the evils which it has been my great object to contend against. I have expressly proposed moral restraint as their rational and proper remedy." The form this remedy was to take was the postponement of the age of marriage until such time as people were in a position to maintain a family in a reasonable standard of comfort. The various devices known as Neo-Malthusian meet throughout with the author's unqualified disapproval, and his idea of restraint is that of complete sexual continence.

The introduction of this new idea into the Essay greatly alters the practical outlook which it affords as to the future, and the possibility of social improvement. It is, in fact, an admission that though there may be a universal tendency for population to outrun subsistence, the tendency may be controlled by reason. It remains, therefore, briefly to consider what light subsequent experience throws on the theories of Malthus.

It is, of course, evident that during the nineteenth century the population of civilised countries has not pressed hardly on the means of subsistence, but that on the contrary there has been a substantial improvement in the material welfare of the great mass of the people. The supply of food available for European nations has immensely increased with the wonderful improvements in transport, and in the methods of production that have taken place. Organisation and science have, in fact, so immeasurably enlarged man's control over the forces of nature that her productivity has increased far more than population, even though the latter has grown at a quite unprecedented rate in the industrial countries of the world.

This fact, however, does not in itself dispose of the contention that in the long run, when new countries begin to fill up, the world's population will once more increase up to the limits of subsistence. In fact, there are some who are already suggesting that the rise in the cost of living in the last few years foreshadows keen competition on the part of industrial nations for the world's food supplies. Such competition is inevitable. The resources of nature are not inexhaustible, and though it is impossible to foresee what services science may have in store, we, at all events, know that there are no new continents in the temperate zone to be brought within the pale of civilisation through further revolutions in transport.

While, therefore, it is axiomatic that the future material prosperity of mankind must ultimately depend upon the balance struck between the increase of population on the one hand, and the increase of resources on the other, the second of these factors is absolutely uncertain and a matter of speculation.

Experience has, however, thrown a new and very important light on the question of the increase of population. Two phenomena stand out as characteristic of the latter part of the nineteenth century: 1, the decline in the marriage-rate, and, 2, the fall in the number of births per marriage.

As regards the former, Professor Brentano[1] has pointed out that though sexual desire is indeed the most powerful of all impulses, and in low stages of civilisation, and even among the lowest classes of more civilised countries, acts with the same elementary force as among animals, the instinct is not a fixed impulse incapable of modification. Hence higher wages, which, according to Malthus, should have produced an increase in the number of marriages, have ultimately been followed by a decline in the marriage-rate without involving anything like a corresponding laxity in extra-marital relations. In the first stages of the industrialisation of a country it is very easy to establish a home and family; and since as a rule the population has not immediately developed a desire for a higher standard of living, the age of marriage falls at the outset. But soon the desire for comforts and luxuries places obstacles in the way of marriage, and with increasing social requirements the difficulty of supporting a family becomes an effective check upon population.

Again, a powerful influence on the decline of the marriage-rate is the altered position of women, and in particular the growing independence and improved social status of the unmarried woman who is able to earn her own livelihood. This consideration, together with the increasing number of enjoyments available for both sexes which enter into competition with the amenities of married life, has diminished its attractiveness, and made people less ready to enter upon it as a matter of course.

Similar considerations account for the decline in the number of births per marriage. Civilisation has perhaps introduced some influences which may have diminished

[1] See article on "The Doctrine of Malthus and the Increase of Population in the last Decades" in the *Economic Journal*, 1910.

the ability to bear children; but, though the point is not capable of statistical proof, there is little doubt that the decline in the birth-rate is in the main due to an intentional restriction of the family. This tendency seems to be almost a universal one, though it is most marked in the most wealthy communities. In Australia, for example, where the working classes are perhaps better off than in any other country of the world, the decline in the "fertility" of marriage is almost the greatest of all. Differences of creed, race, occupation, or domicile, have sometimes been brought forward to account for differences in the "fertility" ratio; but statistics show that it is an invarying accompaniment of increasing wealth and culture.

Hitherto, however, these two tendencies have not actually succeeded in checking the growth of population, owing to the fact that mortality has been diminished, expecially in the case of infants and young children. And since the death-rate has fallen actually more than the birth-rate there has continued to be an excess of births over deaths. It is on this excess that the increase of population depends, and not, of course, on the actual level of the birth-rate. But clearly there must ultimately come a time when the death-rate can fall no farther, and unless the decline in the birth-rate is stopped, there will then be no further increase of population. When that time comes, the problem of population will assume an entirely different aspect; for while the civilised peoples will be stationary in numbers and of increasing wealth, the numbers of other peoples will continue to grow as at present. Thus a change will be brought about in the relative proportions of the white and other races of the world.

Broadly speaking, the actual checks to population in China, India, and many other parts of the world are still those so well described by Malthus. In India, it is true, British rule has abolished civil war, and the total population has increased very rapidly during the last century as railways, irrigation works, and other modern innovations have added to the productive capacity of the country. But famine is still lamentably frequent, and in spite of industrial progress it would seem to be true that the population readily rises up to the limits of the means of subsistence. In the United States, the contrast between the increase of the Negro population and the low fertility of white marriages raises a question of great gravity; and it is no exaggeration to say

that the whole country would soon become entirely black were it not for the tide of emigration from Europe, which preserves the balance between black and white. Thus, although the evidence goes to show that the influence of a rising standard of living is a universal one, it is obviously important to consider how long the present tendency to produce this disproportion will continue, before the check begins to affect the backward races.

Another form of the same problem is that even in countries where what may be called voluntary restraint has begun to make itself felt, the influence is most effective among the more prosperous classes. There is consequently a tendency for the rising generation to be recruited to a disproportionate extent from the poorest section of the people, who, in spite of perhaps many exceptions, are in the main on the one hand less well endowed both mentally and physically than the average, and on the other are in the least favourable position for giving their children a proper environment in the critical years of infancy and childhood.

Such considerations show that whatever may be said by way of criticism, qualification, or enlargement to the thesis enunciated by Malthus, the problem that he raises is now, as ever, one of the greatest practical importance. Its novelty and its immediate importance, combined perhaps with the fact that it could be conveniently used as a means of quieting restless consciences by those who were only too ready to evade their social responsibilities in the matter of poverty, etc., gave it a vogue at the beginning of the nineteenth century to the exclusion of other important economic considerations. The passing of the immediate fear of "over-population" in recent years has placed the matter in a somewhat different light and, in the case of at least one of the great military nations of the Continent, the failure of the "natural increase" is in certain respects regarded as an alarming source of weakness. But the number of the people and the rate of increase is necessarily a fundamentally important fact in all social, economic, or political questions, and Malthus's treatise, forming, as it does, the basis for the discussion of the problem, will always occupy an important place in economic literature.

In conclusion, it may be of interest to the reader to know that, apart from its intrinsic merit, the *Principle of Population* has the distinction of having suggested to Charles Darwin the principle of natural selection in the struggle for existence.

"In October 1838," he writes in his autobiography, "that is fifteen months after I had begun my systematic inquiry, I happened to read for amusement Malthus on Population, and being well prepared to appreciate the struggle for existence which everywhere goes on, from long-continued observation in the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved and unfavourable ones to be destroyed." It is significant, also, that A. Russel Wallace, who discovered and expounded the doctrine of natural selection at the same time as Darwin, himself states that he, too, was indebted to Malthus for this leading idea.

BIOGRAPHICAL

Thomas Robert Malthus, born in 1766, was educated at various private schools, and afterwards at Jesus College, Cambridge, where he was elected a fellow in 1797. Though he took holy orders, and held a curacy for some months at Albury, he was not greatly concerned with ecclesiastical concerns, the epithet "Parson" Malthus being used in scorn by his dialectical opponents. In 1799 he spent some time travelling on the Continent, and in 1805, after the publication of the second edition of his Essay, he became Professor of History and Political Economy at Haileybury College—an institution established by the old East India Company for training the young men who were going to enter its service. In 1819 he was elected a Fellow of the Royal Society, and in 1820 he published a treatise on political economy. He, with Grote, Ricardo, James Mill, and Tooke, was one of the original members of the Political Economy Club founded in 1821. He was also one of the first fellows of the Statistical Society founded in March 1834; but he died a few months later. His wife (*née* Harriet Eckersall), whom he married in 1804, and two of his three children, survived him.

W. T. LAYTON.

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The text that follows has been reprinted from the Seventh Edition with the omission of the lengthy appendices which were concerned with personal controversies of contemporary interest only.

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AUTHOR'S PREFACE TO THE SECOND EDITION

THE Essay on the Principle of Population, which I published in 1798, was suggested, as is expressed in the preface, by a paper in Mr. Godwin's Inquirer. It was written on the impulse of the occasion, and from the few materials which were then within my reach in a country situation. The only authors from whose writings I had deduced the principle, which formed the main argument of the Essay, were Hume, Wallace, Adam Smith, and Dr. Price; and my object was to apply it, to try the truth of those speculations on the perfectibility of man and society, which at that time excited a considerable portion of the public attention.

In the course of the discussion I was naturally led into some examination of the effects of this principle on the existing state of society. It appeared to account for much of that poverty and misery observable among the lower classes of people in every nation, and for those reiterated failures in the efforts of the higher classes to relieve them. The more I considered the subject in this point of view, the more importance it seemed to acquire; and this consideration, joined to the degree of public attention which the Essay excited, determined me to turn my leisure reading towards an historical examination of the effects of the principle of population on the past and present state of society; that, by illustrating the subject more generally, and drawing those inferences from it, in application to the actual state of things, which experience seemed to warrant, I might give it a more practical and permanent interest.

In the course of this inquiry I found that much more had been done than I had been aware of, when I first published the Essay. The poverty and misery arising from a too rapid increase of population had been distinctly seen, and the most violent remedies proposed, so long ago as the times of Plato and Aristotle. And of late years the subject has been treated in such a manner by some of the French Economists, occasionally by Montesquieu, and, among our own writers, by Dr. Franklin, Sir James Stewart, Mr. Arthur Young, and Mr. Townsend, as to create a natural surprise that it had not excited more of the public attention.

Much, however, remained yet to be done. Independently of the comparison between the increase of population and food, which had not perhaps been stated with sufficient force and precision, some of the most curious and interesting parts of the subject had been either wholly omitted or treated very slightly. Though it had been stated distinctly, that population must always be kept down to the level of the means of subsistence; yet few inquiries had been made into the various modes by which this level is effected; and the principle had never been sufficiently pursued to its consequences, nor had those practical inferences drawn from it, which a strict examination of its effects on society appears to suggest.

These therefore are the points which I have treated most in detail in the following Essay. In its present shape it may be considered as a new work, and I should probably have published it as such, omitting the few parts of the former which I have retained, but that I wished it to form a whole of itself, and not to need a continual reference to the other. On this account I trust that no apology is necessary to the purchasers of the first edition.

To those who either understood the subject before, or saw it distinctly on the perusal of the first edition, I am fearful that I shall appear to have treated some parts of it too much in detail, and to have been guilty of unnecessary repetitions. These faults have arisen partly from want of skill, and partly from intention. In drawing similar inferences from the state of society in a number of different countries, I found it very difficult to avoid some repetitions; and in those parts of the inquiry which led to conclusions different from our usual habits of thinking, it appeared to me that, with the slightest hope of producing conviction, it was necessary to present them to the reader's mind at different times, and on different occasions. I was willing to sacrifice all pretensions to merit of composition, to the chance of making an impression on a larger class of readers.

The main principle advanced is so incontrovertible, that, if I had confined myself merely to general views, I could have intrenched myself in an impregnable fortress; and the work, in this form, would probably have had a much more masterly air. But such general views, though they may advance the cause of abstract truth, rarely tend to promote any practical good; and I thought that I should not do justice to the subject, and bring it fairly under discussion, if I refused to consider any of the consequences which appeared necessarily to flow from it, whatever these consequences might be. By pursuing this plan, however,

I am aware that I have opened a door to many objections, and, probably, to much severity of criticism: but I console myself with the reflection, that even the errors into which I may have fallen, by affording a handle to argument, and an additional excitement to examination, may be subservient to the important end of bringing a subject so nearly connected with the happiness of society into more general notice.

Throughout the whole of the present work I have so far differed in principle from the former, as to suppose the action of another check to population which does not come under the head either of vice or misery; and, in the latter part I have endeavoured to soften some of the harshest conclusions of the first Essay. In doing this, I hope that I have not violated the principles of just reasoning; nor expressed any opinion respecting the probable improvement of society, in which I am not borne out by the experience of the past. To those who still think that any check to population whatever would be worse than the evils which it would relieve, the conclusions of the former Essay will remain in full force: and if we adopt this opinion we shall be compelled to acknowledge, that the poverty and misery which prevail among the lower classes of society are absolutely irremediable.

I have taken as much pains as I could to avoid any errors in the facts and calculations which have been produced in the course of the work. Should any of them nevertheless turn out to be false, the reader will see that they will not materially affect the general scope of the reasoning.

From the crowd of materials which presented themselves, in illustration of the first branch of the subject, I dare not flatter myself that I have selected the best, or arranged them in the most perspicuous method. To those who take an interest in moral and political questions, I hope that the novelty and importance of the subject will compensate the imperfections of its execution.

LONDON, *June* 8, 1802.

AN ESSAY ON THE PRINCIPLE OF POPULATION

BOOK I

OF THE CHECKS TO POPULATION IN THE LESS CIVILISED PARTS OF THE WORLD AND IN PAST TIMES

CHAPTER I

STATEMENT OF THE SUBJECT—RATIOS OF THE INCREASE OF POPULATION AND FOOD

In an inquiry concerning the improvement of society, the mode of conducting the subject which naturally presents itself, is,

1. To investigate the causes that have hitherto impeded the progress of mankind towards happiness; and,

2. To examine the probability of the total or partial removal of these causes in future.

To enter fully into this question, and to enumerate all the causes that have hitherto influenced human improvement, would be much beyond the power of an individual. The principal object of the present essay is to examine the effects of one great cause intimately united with the very nature of man; which, though it has been constantly and powerfully operating since the commencement of society, has been little noticed by the writers who have treated this subject. The facts which establish the existence of this cause have, indeed, been repeatedly stated and acknowledged; but its natural and necessary effects have been almost totally overlooked; though probably among these effects may be reckoned a very considerable portion of that vice and misery, and of that unequal distribution of the bounties of nature, which it has been the unceasing object of the enlightened philanthropist in all ages to correct.

The cause to which I allude is the constant tendency in all animated life to increase beyond the nourishment prepared for it.

It is observed by Dr. Franklin that there is no bound to the prolific nature of plants or animals but what is made by their

crowding and interfering with each other's means of subsistence. Were the face of the earth, he says, vacant of other plants, it might be gradually sowed and overspread with one kind only, as for instance with fennel: and were it empty of other inhabitants, it might in a few ages be replenished from one nation only, as for instance with Englishmen.[1]

This is incontrovertibly true. Through the animal and vegetable kingdoms Nature has scattered the seeds of life abroad with the most profuse and liberal hand; but has been comparatively sparing in the room and the nourishment necessary to rear them. The germs of existence contained in this earth, if they could freely develop themselves, would fill millions of worlds in the course of a few thousand years. Necessity, that imperious, all pervading law of nature, restrains them within the prescribed bounds. The race of plants and the race of animals shrink under this great restrictive law; and man cannot by any efforts of reason escape from it.

In plants and irrational animals, the view of the subject is simple. They are all impelled by a powerful instinct to the increase of their species; and this instinct is interrupted by no doubts about providing for their offspring. Wherever therefore there is liberty, the power of increase is exerted; and the superabundant effects are repressed afterwards by want of room and nourishment.

The effects of this check on man are more complica ed. Impelled to the increase of his species by an equally powerful instinct, reason interrupts his career, and asks him whether he may not bring beings into the world for whom he cannot provide the means of support. If he attend to this natural suggestion, the restriction too frequently produces vice. If he hear it not, the human race will be constantly endeavouring to increase beyond the means of subsistence. But as, by that law of our nature which makes food necessary to the life of man, population can never actually increase beyond the lowest nourishment capable of supporting it, a strong check on population, from the difficulty of acquiring food, must be constantly in operation. This difficulty must fall somewhere, and must necessarily be severely felt in some or other of the various forms of misery, or the fear of misery, by a large portion of mankind.

That population has this constant tendency to increase beyond the means of subsistence, and that it is kept to its necessary level by these causes, will sufficiently appear from a review of the

[1] Franklin's Miscell. p. 9.

different states of society in which man has existed. But, before we proceed to this review, the subject will, perhaps, be seen in a clearer light if we endeavour to ascertain what would be the natural increase of population if left to exert itself with perfect freedom; and what might be expected to be the rate of increase in the productions of the earth under the most favourable circumstances of human industry.

It will be allowed that no country has hitherto been known where the manners were so pure and simple, and the means of subsistence so abundant, that no check whatever has existed to early marriages from the difficulty of providing for a family, and that no waste of the human species has been occasioned by vicious customs, by towns, by unhealthy occupations, or too severe labour. Consequently in no state that we have yet known has the power of population been left to exert itself with perfect freedom.

Whether the law of marriage be instituted, or not, the dictate of nature and virtue seems to be an early attachment to one woman; and where there were no impediments of any kind in the way of an union to which such an attachment would lead, and no causes of depopulation afterwards, the increase of the human species would be evidently much greater than any increase which has been hitherto known.

In the northern states of America, where the means of subsistence have been more ample, the manners of the people more pure, and the checks to early marriages fewer than in any of the modern states of Europe, the population has been found to double itself, for above a century and a half successively, in less than twenty-five years.[1] Yet, even during these periods, in some of the towns, the deaths exceeded the births,[2] a circumstance which clearly proves that, in those parts of the country which supplied this deficiency, the increase must have been much more rapid than the general average.

In the back settlements, where the sole employment is agriculture, and vicious customs and unwholesome occupations are little known, the population has been found to double itself in fifteen years.[3] Even this extraordinary rate of increase is probably short of the utmost power of population. Very severe

[1] It appears, from some recent calculations and estimates, that from the first settlement of America to the year 1800, the periods of doubling have been but very little above twenty years. See a note on the increase of American population in Book ii. chap. xi.

[2] Price's Observ. on Revers. Pay. vol. i. p. 274, 4th edit.

[3] Id. p. 282.

labour is requisite to clear a fresh country; such situations are not in general considered as particularly healthy; and the inhabitants, probably, are occasionally subject to the incursions of the Indians, which may destroy some lives, or at any rate diminish the fruits of industry.

According to a table of Euler, calculated on a mortality of 1 in 36, if the births be to the deaths in the proportion of 3 to 1, the period of doubling will be only 12 years and 4-5ths.[1] And this proportion is not only a possible supposition, but has actually occurred for short periods in more countries than one.

Sir William Petty supposes a doubling possible in so short a time as ten years.[2]

But, to be perfectly sure that we are far within the truth, we will take the slowest of these rates of increase, a rate in which all concurring testimonies agree, and which has been repeatedly ascertained to be from procreation only.

It may safely be pronounced, therefore, that population, when unchecked, goes on doubling itself every twenty-five years, or increases in a geometrical ratio.

The rate according to which the productions of the earth may be supposed to increase, it will not be so easy to determine. Of this, however, we may be perfectly certain, that the ratio of their increase in a limited territory must be of a totally different nature from the ratio of the increase of population. A thousand millions are just as easily doubled every twenty-five years by the power of population as a thousand. But the food to support the increase from the greater number will by no means be obtained with the same facility. Man is necessarily confined in room. When acre has been added to acre till all the fertile land is occupied, the yearly increase of food must depend upon the melioration of the land already in possession. This is a fund, which, from the nature of all soils, instead of increasing, must be gradually diminishing. But population, could it be supplied with food, would go on with unexhausted vigour; and the increase of one period would furnish the power of a greater increase the next, and this without any limit.

From the accounts we have of China and Japan, it may be fairly doubted whether the best-directed efforts of human industry could double the produce of these countries even once in any number of years. There are many parts of the globe, indeed, hitherto uncultivated, and almost unoccupied; but the

[1] See this table at the end of chap. iv. book ii.
[2] Polit. Arith. p. 14.

right of exterminating, or driving into a corner where they must starve, even the inhabitants of these thinly-peopled regions, will be questioned in a moral view. The process of improving their minds and directing their industry would necessarily be slow; and during this time, as population would regularly keep pace with the increasing produce, it would rarely happen that a great degree of knowledge and industry would have to operate at once upon rich unappropriated soil. Even where this might take place, as it does sometimes in new colonies, a geometrical ratio increases with such extraordinary rapidity, that the advantage could not last long. If the United States of America continue increasing, which they certainly will do, though not with the same rapidity as formerly, the Indians will be driven further and further back into the country, till the whole race is ultimately exterminated, and the territory is incapable of further extension.

These observations are, in a degree, applicable to all the parts of the earth where the soil is imperfectly cultivated. To exterminate the inhabitants of the greatest part of Asia and Africa is a thought that could not be admitted for a moment. To civilise and direct the industry of the various tribes of Tartars and Negroes would certainly be a work of considerable time and of variable and uncertain success.

Europe is by no means so fully peopled as it might be. In Europe there is the fairest chance that human industry may receive its best direction. The science of agriculture has been much studied in England and Scotland; and there is still a great portion of uncultivated land in these countries. Let us consider at what rate the produce of this island might be supposed to increase under circumstances the most favourable to improvement.

If it be allowed that by the best possible policy, and great encouragements to agriculture, the average produce of the island could be doubled in the first twenty-five years, it will be allowing, probably, a greater increase than could with reason be expected.

In the next twenty-five years, it is impossible to suppose that the produce could be quadrupled. It would be contrary to all our knowledge of the properties of land. The improvement of the barren parts would be a work of time and labour; and it must be evident to those who have the slightest acquaintance with agricultural subjects that, in proportion as cultivation extended, the additions that could yearly be made to the former average produce must be gradually and regularly diminishing. That we may be the better able to compare the increase of

population and food, let us make a supposition, which, without pretending to accuracy, is clearly more favourable to the power of production in the earth than any experience we have had of its qualities will warrant.

Let us suppose that the yearly additions which might be made to the former average produce, instead of decreasing, which they certainly would do, were to remain the same; and that the produce of this island might be increased every twenty-five years by a quantity equal to what it at present produces. The most enthusiastic speculator cannot suppose a greater increase than this. In a few centuries it would make every acre of land in the island like a garden.

If this supposition be applied to the whole earth, and if it be allowed that the subsistence for man which the earth affords might be increased every twenty-five years by a quantity equal to what it at present produces, this will be supposing a rate of increase much greater than we can imagine that any possible exertions of mankind could make it.

It may be fairly pronounced, therefore, that, considering the present average state of the earth, the means of subsistence, under circumstances the most favourable to human industry, could not possibly be made to increase faster than in an arithmetical ratio.

The necessary effects of these two different rates of increase, when brought together, will be very striking. Let us call the population of this island eleven millions; and suppose the present produce equal to the easy support of such a number. In the first twenty-five years the population would be twenty-two millions, and the food being also doubled, the means of subsistence would be equal to this increase. In the next twenty-five years, the population would be forty-four millions, and the means of subsistence only equal to the support of thirty-three millions. In the next period the population would be eighty-eight millions, and the means of subsistence just equal to the support of half that number. And, at the conclusion of the first century, the population would be a hundred and seventy-six millions, and the means of subsistence only equal to the support of fifty-five millions, leaving a population of a hundred and twenty-one millions totally unprovided for.

Taking the whole earth, instead of this island, emigration would of course be excluded; and, supposing the present population equal to a thousand millions, the human species would increase as the numbers, 1, 2, 4, 8, 16, 32, 64, 128, 256, and subsistence as

1, 2, 3, 4, 5, 6, 7, 8, 9. In two centuries the population would be to the means of subsistence as 256 to 9; in three centuries as 4096 to 13, and in two thousand years the difference would be almost incalculable.

In this supposition no limits whatever are placed to the produce of the earth. It may increase for ever and be greater than any assignable quantity; yet still the power of population being in every period so much superior, the increase of the human species can only be kept down to the level of the means of subsistence by the constant operation of the strong law of necessity, acting as a check upon the greater power.

CHAPTER II

OF THE GENERAL CHECKS TO POPULATION, AND THE MODE OF THEIR OPERATION

THE ultimate check to population appears then to be a want of food, arising necessarily from the different ratios according to which population and food increase. But this ultimate check is never the immediate check, except in cases of actual famine.

The immediate check may be stated to consist in all those customs, and all those diseases, which seem to be generated by a scarcity of the means of subsistence; and all those causes, independent of this scarcity, whether of a moral or physical nature, which tend prematurely to weaken and destroy the human frame.

These checks to population, which are constantly operating with more or less force in every society, and keep down the number to the level of the means of subsistence, may be classed under two general heads—the preventive and the positive checks.

The preventive check, as far as it is voluntary, is peculiar to man, and arises from that distinctive superiority in his reasoning faculties which enables him to calculate distant consequences. The checks to the indefinite increase of plants and irrational animals are all either positive, or, if preventive, involuntary. But man cannot look around him and see the distress which frequently presses upon those who have large families; he cannot contemplate his present possessions or earnings, which he now nearly consumes himself, and calculate the amount of each share, when with very little addition they must be divided, perhaps, among seven or eight, without feeling a doubt whether, if he follow the bent of his inclinations, he may be able to support the offspring which he will probably bring into the world. In a state of equality, if such can exist, this would be the simple question. In the present state of society other considerations occur. Will he not lower his rank in life, and be obliged to give up in great measure his former habits? Does any mode of employment present itself by which he may reasonably hope to maintain a family? Will he not at any rate subject himself to greater difficulties, and more severe labour, than in his single state? Will he not be unable to transmit to his children the

same advantages of education and improvement that he had himself possessed? Does he even feel secure that, should he have a large family, his utmost exertions can save them from rags and squalid poverty, and their consequent degradation in the community? And may he not be reduced to the grating necessity of forfeiting his independence, and of being obliged to the sparing hand of Charity for support?

These considerations are calculated to prevent, and certainly do prevent, a great number of persons in all civilised nations from pursuing the dictate of nature in an early attachment to one woman.

If this restraint do not produce vice, it is undoubtedly the least evil that can arise from the principle of population. Considered as a restraint on a strong natural inclination, it must be allowed to produce a certain degree of temporary unhappiness; but evidently slight, compared with the evils which result from any of the other checks to population; and merely of the same nature as many other sacrifices of temporary to permanent gratification, which it is the business of a moral agent continually to make.

When this restraint produces vice, the evils which follow are but too conspicuous. A promiscuous intercourse to such a degree as to prevent the birth of children seems to lower, in the most marked manner, the dignity of human nature. It cannot be without its effect on men, and nothing can be more obvious than its tendency to degrade the female character, and to destroy all its most amiable and distinguishing characteristics. Add to which, that among those unfortunate females, with which all great towns abound, more real distress and aggravated misery are, perhaps, to be found than in any other department of human life.

When a general corruption of morals, with regard to the sex, pervades all the classes of society, its effects must necessarily be to poison the springs of domestic happiness, to weaken conjugal and parental affection, and to lessen the united exertions and ardour of parents in the care and education of their children—effects which cannot take place without a decided diminution of the general happiness and virtue of the society; particularly as the necessity of art in the accomplishment and conduct of intrigues, and in the concealment of their consequences, necessarily leads to many other vices.

The positive checks to population are extremely various, and include every cause, whether arising from vice or misery, which

in any degree contributes to shorten the natural duration of human life. Under this head, therefore, may be enumerated all unwholesome occupations, severe labour and exposure to the seasons, extreme poverty, bad nursing of children, great towns, excesses of all kinds, the whole train of common diseases and epidemics, wars, plague, and famine.

On examining these obstacles to the increase of population which I have classed under the heads of preventive and positive checks, it will appear that they are all resolvable into moral restraint, vice, and misery.

Of the preventive checks, the restraint from marriage which is not followed by irregular gratifications may properly be termed moral restraint.[1]

Promiscuous intercourse, unnatural passions, violations of the marriage bed, and improper arts to conceal the consequences of irregular connections, are preventive checks that clearly come under the head of vice.

Of the positive checks, those which appear to arise unavoidably from the laws of nature, may be called exclusively misery; and those which we obviously bring upon ourselves, such as wars, excesses, and many others which it would be in our power to avoid, are of a mixed nature. They are brought upon us by vice, and their consequences are misery.[2]

[1] It will be observed that I here use the term *moral* in its most confined sense. By moral restraint I would be understood to mean a restraint from marriage from prudential motives, with a conduct strictly moral during the period of this restraint; and I have never intentionally deviated from this sense. When I have wished to consider the restraint from marriage unconnected with its consequences, I have either called it prudential restraint, or a part of the preventive check, of which indeed it forms the principal branch.

In my review of the different stages of society, I have been accused of not allowing sufficient weight in the prevention of population to moral restraint; but when the confined sense of the term, which I have here explained, is adverted to, I am fearful that I shall not be found to have erred much in this respect. I should be very glad to believe myself mistaken.

[2] As the general consequence of vice is misery, and as this consequence is the precise reason why an action is termed vicious, it may appear that the term misery alone would be here sufficient, and that it is superfluous to use both. But the rejection of the term vice would introduce a considerable confusion into our language and ideas. We want it particularly to distinguish those actions, the general tendency of which is to produce misery, and which are therefore prohibited by the commands of the Creator, and the precepts of the moralist, although, in their immediate or individual effects, they may produce perhaps exactly the contrary. The gratification of all our passions in its immediate effect is happiness, not misery; and, in individual instances, even the remote consequences (at least in this life) may possibly come under the same denomination. There may have been some irregular connections with women, which have added to the happiness

The sum of all these preventive and positive checks, taken together, forms the immediate check to population; and it is evident that, in every country where the whole of the procreative power cannot be called into action, the preventive and the positive checks must vary inversely as each other; that is, in countries either naturally unhealthy, or subject to a great mortality, from whatever cause it may arise, the preventive check will prevail very little. In those countries, on the contrary, which are naturally healthy, and where the preventive check is found to prevail with considerable force, the positive check will prevail very little, or the mortality be very small.

In every country some of these checks are, with more or less force, in constant operation; yet, notwithstanding their general prevalence, there are few states in which there is not a constant effort in the population to increase beyond the means of subsistence. This constant effort as constantly tends to subject the lower classes of society to distress, and to prevent any great permanent melioration of their condition.

These effects, in the present state of society, seem to be produced in the following manner. We will suppose the means of subsistence in any country just equal to the easy support of its inhabitants. The constant effort towards population, which is found to act even in the most vicious societies, increases the number of people before the means of subsistence are increased. The food, therefore, which before supported eleven millions, must now be divided among eleven millions and a half. The poor consequently must live much worse, and many of them be reduced to severe distress. The number of labourers also being above the proportion of work in the market, the price of labour must tend to fall, while the price of provisions would at the same time tend to rise. The labourer therefore must do more work to earn the same as he did before. During this season of distress, the discouragements to marriage and the difficulty of rearing a family are so great that the progress of population is retarded. In the meantime, the cheapness of labour, the plenty of labourers, and the necessity of an increased industry among them, encourage cultivators to employ more labour upon their

of both parties, and have injured no one. These individual actions, therefore, cannot come under the head of misery. But they are still evidently vicious, because an action is so denominated, which violates an express precept, founded upon its general tendency to produce misery, whatever may be its individual effect; and no person can doubt the general tendency of an illicit intercourse between the sexes to injure the happiness of society.

land, to turn up fresh soil, and to manure and improve more completely what is already in tillage, till ultimately the means of subsistence may become in the same proportion to the population as at the period from which we set out. The situation of the labourer being then again tolerably comfortable, the restraints to population are in some degree loosened; and, after a short period, the same retrograde and progressive movements, with respect to happiness, are repeated.

This sort of oscillation will not probably be obvious to common view; and it may be difficult even for the most attentive observer to calculate its periods. Yet that, in the generality of old states, some alternation of this kind does exist though in a much less marked, and in a much more irregular manner, than I have described it, no reflecting man, who considers the subject deeply, can well doubt.

One principal reason why this oscillation has been less remarked, and less decidedly confirmed by experience than might naturally be expected, is, that the histories of mankind which we possess are, in general, histories only of the higher classes. We have not many accounts that can be depended upon of the manners and customs of that part of mankind where these retrograde and progressive movements chiefly take place. A satisfactory history of this kind, of one people and of one period, would require the constant and minute attention of many observing minds in local and general remarks on the state of the lower classes of society, and the causes that influenced it; and to draw accurate inferences upon this subject, a succession of such historians for some centuries would be necessary. This branch of statistical knowledge has, of late years, been attended to in some countries,[1] and we may promise ourselves a clearer

[1] The judicious questions which Sir John Sinclair circulated in Scotland, and the valuable accounts which he has collected in that part of the island, do him the highest honour; and these accounts will ever remain an extraordinary monument of the learning, good sense, and general information of the clergy of Scotland. It is to be regretted that the adjoining parishes are not put together in the work, which would have assisted the memory both in attaining and recollecting the state of particular districts. The repetitions and contradictory opinions which occur are not in my opinion so objectionable, as, to the result of such testimony, more faith may be given than we could possibly give to the testimony of any individual. Even were this result drawn for us by some master hand, though much valuable time would undoubtedly be saved, the information would not be so satisfactory. If, with a few subordinate improvements, this work had contained accurate and complete registers for the last 150 years, it would have been inestimable, and would have exhibited a better picture of the internal state of a country than has yet been presented to the world. But this last most essential improvement no diligence could have effected.

insight into the internal structure of human society from the progress of these inquiries. But the science may be said yet to be in its infancy, and many of the objects, on which it would be desirable to have information, have been either omitted or not stated with sufficient accuracy. Among these, perhaps, may be reckoned the proportion of the number of adults to the number of marriages; the extent to which vicious customs have prevailed in consequence of the restraints upon matrimony; the comparative mortality among the children of the most distressed part of the community and of those who live rather more at their ease; the variations in the real price of labour; the observable differences in the state of the lower classes of society, with respect to ease and happiness, at different times during a certain period; and very accurate registers of births, deaths, and marriages, which are of the utmost importance in this subject.

A faithful history, including such particulars, would tend greatly to elucidate the manner in which the constant check upon population acts; and would probably prove the existence of the retrograde and progressive movements that have been mentioned; though the times of their vibration must necessarily be rendered irregular from the operation of many interrupting causes; such as, the introduction or failure of certain manufactures; a greater or less prevalent spirit of agricultural enterprise; years of plenty or years of scarcity; wars, sickly seasons, poor laws, emigrations, and other causes of a similar nature.

A circumstance which has, perhaps, more than any other, contributed to conceal this oscillation from common view is the difference between the nominal and real price of labour. It very rarely happens that the nominal price of labour universally falls; but we well know that it frequently remains the same while the nominal price of provisions has been gradually rising. This, indeed, will generally be the case if the increase of manufactures and commerce be sufficient to employ the new labourers that are thrown into the market, and to prevent the increased supply from lowering the money-price.[1] But an increased

[1] If the new labourers thrown yearly into the market should find no employment but in agriculture, their competition might so lower the money-price of labour as to prevent the increase of population from occasioning an effective demand for more corn; or, in other words, if the landlords and farmers could get nothing but an additional quantity of agricultural labour in exchange for any additional produce which they could raise, they might not be tempted to raise it.

number of labourers receiving the same money-wages will necessarily, by their competition, increase the money-price of corn. This is, in fact, a real fall in the price of labour; and, during this period, the condition of the lower classes of the community must be gradually growing worse. But the farmers and capitalists are growing rich from the real cheapness of labour. Their increasing capitals enable them to employ a greater number of men; and, as the population had probably suffered some check from the greater difficulty of supporting a family, the demand for labour, after a certain period, would be great in proportion to the supply, and its price would of course rise, if left to find its natural level; and thus the wages of labour, and consequently the condition of the lower classes of society, might have progressive and retrograde movements, though the price of labour might never nominally fall.

In savage life, where there is no regular price of labour, it is little to be doubted that similar oscillations took place. When population has increased nearly to the utmost limits of the food, all the preventive and the positive checks will naturally operate with increased force. Vicious habits with respect to the sex will be more general, the exposing of children more frequent, and both the probability and fatality of wars and epidemics will be considerably greater; and these causes will probably continue their operation till the population is sunk below the level of the food; and then the return to comparative plenty will again produce an increase, and, after a certain period, its further progress will again be checked by the same causes.[1]

But without attempting to establish these progressive and retrograde movements in different countries, which would evidently require more minute histories than we possess, and which the progress of civilisation naturally tends to counteract, the following propositions are intended to be proved:—

1. Population is necessarily limited by the means of subsistence.

2. Population invariably increases where the means of subsistence increase, unless prevented by some very powerful and obvious checks.[2]

[1] Sir James Stuart very justly compares the generative faculty to a spring loaded with a variable weight (Polit. Econ. vol. i. b. i. c. 4, p. 20), which would of course produce exactly that kind of oscillation which has been mentioned. In the first book of his Political Economy, he has explained many parts of the subject of population very ably.

[2] I have expressed myself in this cautious manner, because I believe there are some instances where population does not keep up to the level

3. These checks, and the checks which repress the superior power of population, and keep its effects on a level with the means of subsistence, are all resolvable into moral restraint, vice, and misery.

The first of these propositions scarcely needs illustration. The second and third will sufficiently be established by a review of the immediate checks to population in the past and present state of society.

This review will be the subject of the following chapters.

of the means of subsistence. But these are extreme cases; and, generally speaking, it might be said that,

2. Population always increases where the means of subsistence increase.

3. The checks which repress the superior power of population, and keep its effects on a level with the means of subsistence, are all resolvable into moral restraint, vice, and misery.

It should be observed that, by an increase in the means of subsistence is here meant such an increase as will enable the mass of the society to command more food. An increase might certainly take place, which in the actual state of a particular society would not be distributed to the lower classes, and consequently would give no stimulus to population.

CHAPTER III

OF THE CHECKS TO POPULATION IN THE LOWEST STAGE OF HUMAN SOCIETY

THE wretched inhabitants of Tierra del Fuego have been placed, by the general consent of voyagers, at the bottom of the scale of human beings.[1] Of their domestic habits and manners, however, we have few accounts. Their barren country, and the miserable state in which they live, have prevented any intercourse with them that might give such information; but we cannot be at a loss to conceive the checks to population among a race of savages, whose very appearance indicates them to be half starved, and who, shivering with cold and covered with filth and vermin, live in one of the most inhospitable climates in the world, without having sagacity enough to provide themselves with such conveniences as might mitigate its severities, and render life in some measure more comfortable.[2]

Next to these, and almost as low in genius and resources, have been placed the natives of Van Diemen's land;[3] but some late accounts have represented the islands of Andaman in the East as inhabited by a race of savages still lower in wretchedness even than these. Everything that voyagers have related of savage life is said to fall short of the barbarism of this people. Their whole time is spent in search of food: and as their woods yield them few or no supplies of animals, and but little vegetable diet, their principal occupation is that of climbing the rocks, or roving along the margin of the sea, in search of a precarious meal of fish, which, during the tempestuous season, they often seek for in vain. Their stature seldom exceeds five feet; their bellies are protuberant, with high shoulders, large heads, and limbs disproportionably slender. Their countenances exhibit the extreme of wretchedness, a horrid mixture of famine and ferocity; and their extenuated and diseased figures plainly indicate the want of wholesome nourishment. Some of these unhappy beings have been found on the shores in the last stage of famine.[4]

[1] Cook's First Voy. vol. ii. p. 59.
[2] Cook's Second Voy. vol. ii. p. 187.
[3] Vancouver's Voy. vol. ii. b. iii. c. i. p. 13.
[4] Symes's Embassy to Ava, ch. i. p. 129, and Asiatic Researches, vol. iv. p. 401.

In the next scale of human beings we may place the inhabitants of New Holland, of a part of whom we have some accounts that may be depended upon from a person who resided a considerable time at Port Jackson, and had frequent opportunities of being a witness to their habits and manners. The narrator of Captain Cook's first voyage having mentioned the very small number of inhabitants that was seen on the eastern coast of New Holland, and the apparent inability of the country, from its desolate state, to support many more, observes, "By what means the inhabitants of this country are reduced to such a number as it can subsist, is not perhaps very easy to guess; whether, like the inhabitants of New Zealand, they are destroyed by the hands of each other in contests for food; whether they are swept off by accidental famine; or whether there is any cause that prevents the increase of the species, must be left for future adventurers to determine." [1]

The account which Mr. Collins has given of these savages will, I hope, afford in some degree a satisfactory answer. They are described as, in general, neither tall nor well made. Their arms, legs, and thighs are thin, which is ascribed to the poorness of their mode of living. Those who inhabit the sea-coast depend almost entirely on fish for their sustenance, relieved occasionally by a repast on some large grubs which are found in the body of the dwarf gum-tree. The very scanty stock of animals in the woods, and the very great labour necessary to take them, keep the inland natives in as poor a condition as their brethren on the coast. They are compelled to climb the tallest trees after honey and the smaller animals, such as the flying squirrel and the opossum. When the stems are of great height, and without branches, which is generally the case in thick forests, this is a process of great labour, and is effected by cutting a notch with their stone hatchets for each foot successively, while their left arm embraces the tree. Trees were observed notched in this manner to the height of eighty feet before the first branch, where the hungry savage could hope to meet with any reward for so much toil.[2]

The woods, exclusive of the animals occasionally found in them, afford but little sustenance. A few berries, the yam, the fern root, and the flowers of the different banksias, make up the whole of the vegetable catalogue.[3]

[1] Cook's First Voy. vol. iii. p. 240.
[2] Collins's Account of New South Wales, Appendix, p. 549. 4to.
[3] Id. Appen. p. 557. 4to.

A native with his child, surprised on the banks of the Hawksbury river by some of our colonists, launched his canoe in a hurry, and left behind him a specimen of his food and of the delicacy of his stomach. From a piece of water-soaked wood, full of holes, he had been extracting and eating a large worm. The smell both of the worm and its habitation was in the highest degree offensive. These worms, in the language of the country, are called Cah-bro; and a tribe of natives dwelling inland, from the circumstance of eating these loathsome worms, is named Cah-brogal. The wood-natives also make a paste formed of the fern root and the large and small ants, bruised together; and, in the season, add the eggs of this insect.[1]

In a country, the inhabitants of which are driven to such resources for subsistence, where the supply of animal and vegetable food is so extremely scanty, and the labour necessary to procure it is so severe, it is evident that the population must be very thinly scattered in proportion to the territory. Its utmost bounds must be very narrow. But when we advert to the strange and barbarous customs of these people, the cruel treatment of their women, and the difficulty of rearing children; instead of being surprised that it does not more frequently press to pass these bounds, we shall be rather inclined to consider even these scanty resources as more than sufficient to support all the population that could grow up under such circumstances.

The prelude to love in this country is violence, and of the most brutal nature. The savage selects his intended wife from the women of a different tribe, generally one at enmity with his own. He steals upon her in the absence of her protectors, and having first stupefied her with blows of a club, or wooden sword, on the head, back, and shoulders, every one of which is followed by a stream of blood, he drags her through the woods by one arm, regardless of the stones and broken pieces of trees that may lie in his route, and anxious only to convey his prize in safety to his own party. The woman thus treated becomes his wife, is incorporated into the tribe to which he belongs, and but seldom quits him for another. The outrage is not resented by the relations of the female, who only retaliate by a similar outrage when it is in their power.[2]

The union of the sexes takes place at an early age; and instances were known to our colonists of very young girls having been much and shamefully abused by the males.[3]

[1] Collins's Account of New South Wales, Appendix, p. 558.
[2] Id. Appen. p. 559.
[3] Id. Appen. p. 563.

The conduct of the husband to his wife or wives seems to be nearly in character with this strange and barbarous mode of courtship. The females bear on their heads the traces of the superiority of the males, which is exercised almost as soon as they find strength in their arms to inflict a blow. Some of these unfortunate beings have been observed with more scars on their shorn heads, cut in every direction, than could well be counted. Mr. Collins feelingly says, " The condition of these women is so wretched that I have often, on seeing a female child borne on its mother's shoulders, anticipated the miseries to which it was born, and thought it would be a mercy to destroy it." [1] In another place, speaking of Bennilong's wife being delivered of a child, he says, " I here find in my papers a note, that for some offence Bennilong had severely beaten this woman in the morning, a short time before she was delivered." [2]

Women treated in this brutal manner must necessarily be subject to frequent miscarriages, and it is probable that the abuse of very young girls, mentioned above as common, and the too early union of the sexes in general, would tend to prevent the females from being prolific. Instances of a plurality of wives were found more frequent than of a single wife; but what is extraordinary, Mr. Collins did not recollect ever to have noticed children by more than one. He had heard from some of the natives that the first wife claimed an exclusive right to the conjugal embrace, while the second was merely the slave and drudge of both.[3]

An absolutely exclusive right in the first wife to the conjugal embrace seems to be hardly probable; but it is possible that the second wife may not be allowed to rear her offspring. At any rate, if the observation be generally true, it proves that many of the women are without children, which can only be accounted for from the very severe hardships which they undergo, or from some particular customs which may not have come to the knowledge of Mr. Collins.

If the mother of a sucking child die, the helpless infant is buried alive in the same grave with its mother. The father himself places his living child on the body of his dead wife, and having thrown a large stone upon it, the grave is instantly filled by the other natives. This dreadful act was performed by Co-le-be, a native well known to our colonists, and who, on being talked to on the subject, justified the proceeding by declaring

[1] Collins's New South Wales, Appen. p. 583.
[2] Id. Appen. note, p. 562.
[3] Id. Appen. p. 560.

that no woman could be found who would undertake to nurse the child, and that therefore it must have died a much worse death than that which he had given it. Mr. Collins had reason to believe that this custom was generally prevalent, and observes that it may in some measure account for the thinness of the population.[1]

Such a custom, though in itself perhaps it might not much affect the population of a country, places in a strong point of view the difficulty of rearing children in savage life. Women obliged by their habits of living to a constant change of place, and compelled to an unremitting drudgery for their husbands, appear to be absolutely incapable of bringing up two or three children nearly of the same age. If another child be born before the one above it can shift for itself, and follow its mother on foot, one of the two must almost necessarily perish for want of care. The task of rearing even one infant, in such a wandering and laborious life, must be so troublesome and painful that we are not to be surprised that no woman can be found to undertake it who is not prompted by the powerful feelings of a mother.

To these causes, which forcibly repress the rising generation, must be added those which contribute consequently to destroy it; such as the frequent wars of these savages with different tribes, and their perpetual contests with each other; their strange spirit of retaliation and revenge, which prompts the midnight murder, and the frequent shedding of innocent blood; the smoke and filth of their miserable habitations, and their poor mode of living, productive of loathsome cutaneous disorders; and, above all, a dreadful epidemic like the small-pox, which sweeps off great numbers.[2]

In the year 1789 they were visited by this epidemic, which raged among them with all the appearance and virulence of the small-pox. The desolation which it occasioned was almost incredible. Not a living person was to be found in the bays and harbours that were before the most frequented. Not a vestige of a human foot was to be traced on the sands. They had left the dead to bury the dead. The excavations in the rocks were filled with putrid bodies, and in many places the paths were covered with skeletons.[3]

Mr. Collins was informed that the tribe of Co-le-be, the native

[1] Collins's New South Wales, Appen. p. 607.
[2] See generally, the Appendix to Collins's Account of the English Colony in New South Wales.
[3] Collins's New South Wales, Appendix, p. 597.

mentioned before, had been reduced by the effects of this dreadful disorder to three persons, who found themselves obliged to unite with some other tribe to prevent their utter extinction.[1]

Under such powerful causes of depopulation, we should naturally be inclined to suppose that the animal and vegetable produce of the country would be increasing upon the thinly scattered inhabitants, and, added to the supply of fish from their shores, would be more than sufficient for their consumption; yet it appears, upon the whole, that the population is in general so nearly on a level with the average supply of food, that every little deficiency from unfavourable weather or other causes occasions distress. Particular times, when the inhabitants seemed to be in great want, are mentioned as not uncommon, and, at these periods, some of the natives were found reduced to skeletons, and almost starved to death.[2]

[1] Id. Appendix, p. 598.
[2] Collins's New South Wales, c. iii. p. 34, and Appen. p. 551.

CHAPTER IV

OF THE CHECKS TO POPULATION AMONG THE AMERICAN INDIANS

We may next turn our view to the vast continent of America, the greatest part of which was found to be inhabited by small independent tribes of savages, subsisting, nearly like the natives of New Holland, on the productions of unassisted nature. The soil was covered by an almost universal forest and presented few of those fruits and esculent vegetables which grow in such profusion in the islands of the South Sea. The produce of a most rude and imperfect agriculture, known to some of the tribe of hunters, was so trifling as to be considered only as a feeble aid to the subsistence acquired by the chase. The inhabitants of this new world therefore might be considered as living principally by hunting and fishing;[1] and the narrow limits to this mode of subsistence are obvious. The supplies derived from fishing could reach only those who were within a certain distance of the lakes, the rivers, or the sea-shore; and the ignorance and indolence of the improvident savage would frequently prevent him from extending the benefits of these supplies much beyond the time when they were actually obtained. The great extent of territory required for the support of the hunter has been repeatedly stated and acknowledged.[2] The number of wild animals within his reach, combined with the facility with which they may be either killed or ensnared, must necessarily limit the number of his society. The tribes of hunters, like beasts of prey, whom they resemble in their mode of subsistence, will consequently be thinly scattered over the surface of the earth. Like beasts of prey, they must either drive away or fly from every rival, and be engaged in perpetual contests with each other.[3]

Under such circumstances, that America should be very thinly peopled in proportion to its extent of territory is merely an exemplification of the obvious truth that population cannot increase without the food to support it. But the interesting part of the inquiry, that part to which I would wish particularly to

[1] Robertson's History of America, vol. ii. b. iv. p. 127, et seq. octavo edit. 1780.

[2] Franklin's Miscell. p. 2.

[3] Robertson, b. iv. p. 129.

draw the attention of the reader, is the mode by which the population is kept down to the level of this scanty supply. It cannot escape observation that an insufficient supply of food to any people does not show itself merely in the shape of famine, but in other more permanent forms of distress, and in generating certain customs which operate sometimes with greater force in the prevention of a rising population than in its subsequent destruction.

It was generally remarked that the American women were far from being prolific.[1] This unfruitfulness has been attributed by some to a want of ardour in the men towards their women, a feature of character which has been considered as peculiar to the American savage. It is not however peculiar to this race, but probably exists in a great degree among all barbarous nations whose food is poor and insufficient, and who live in a constant apprehension of being pressed by famine or by an enemy. Bruce frequently takes notice of it, particularly in reference to the Galla and Shangalla, savage nations on the borders of Abyssinia,[2] and Vaillant mentions the phlegmatic temperament of the Hottentots as the chief reason of their thin population.[3] It seems to be generated by the hardships and dangers of savage life, which take off the attention from the sexual passion; and that these are the principal causes of it among the Americans, rather than any absolute constitutional defect, appears probable from its diminishing nearly in proportion to the degree in which these causes are mitigated or removed. In those countries of America where, from peculiar situation or further advantages in improvement, the hardships of savage life are less severely felt, the passion between the sexes becomes more ardent. Among some of the tribes seated on the banks of rivers well stored with fish, or others that inhabit a territory greatly abounding in game or much improved in agriculture, the women are more valued and admired; and as hardly any restraint is imposed on the gratification of desire, the dissoluteness of their manners is sometimes excessive.[4]

[1] Id. b. iv. p. 106. Burke's America, vol. i. p. 187. Charlevoix, Hist. de la Nouvelle France, tom. iii. p. 304. Lafitau, Mœurs des Sauvages, tom. i. p. 590. In the course of this chapter I often give the same references as Robertson; but never without having examined and verified them myself. Where I have not had an opportunity of doing this, I refer to Robertson alone.

[2] Travels to discover the Source of the Nile, vol. ii. pp. 223, 559.

[3] Voyage dans l'Intérieur de l'Afrique, tom. i. p. 12, 13.

[4] Robertson, b. iv. p. 71. Lettres Edif. et Curieuses, tom. vi. pp. 48, 322, 330; tom. vii. p. 20. 12 mo. edit. 1780. Charlevoix, tom. iii. pp. 303, 423. Hennepin, Mœurs des Sauvages, p. 37.

If we do not then consider this apathy of the Americans as a natural defect in their bodily frame, but merely as a general coldness, and an infrequency of the calls of the sexual appetite, we shall not be inclined to give much weight to it as affecting the number of children to a marriage; but shall be disposed to look for the cause of this unfruitfulness in the condition and customs of the women in a savage state. And here we shall find reasons amply sufficient to account for the fact in question.

It is justly observed by Dr. Robertson that, "Whether man has been improved by the progress of arts and civilisation is a question which in the wantonness of disputation has been agitated among philosophers. That women are indebted to the refinement of polished manners for a happy change in their state is a point which can admit of no doubt."[1] In every part of the world, one of the most general characteristics of the savage is to despise and degrade the female sex.[2] Among most of the tribes in America their condition is so peculiarly grievous that servitude is a name too mild to describe their wretched state. A wife is no better than a beast of burden. While the man passes his days in idleness or amusement, the woman is condemned to incessant toil. Tasks are imposed upon her without mercy, and services are received without complacence or gratitude.[3] There are some districts in America where this state of degradation has been so severely felt that mothers have destroyed their female infants to deliver them at once from a life in which they were doomed to such a miserable slavery.[4]

This state of depression and constant labour, added to the unavoidable hardships of savage life, must be very unfavourable to the office of child-bearing;[5] and the libertinage which generally prevails among the women before marriage, with the habit of procuring abortions, must necessarily render them more unfit for bearing children afterwards.[6] One of the missionaries, speaking of the common practice among the Natchez of changing their wives, adds, unless they have children by them; a proof that

[1] Robertson, b. iv. p. 103.

[2] Id. b. iv. p. 103. Lettres Edif. passim. Charlevoix, Hist. Nouv. Fr. tom. iii. p. 287. Voy. de Pérouse, c. ix. p. 402. 4to. London.

[3] Robertson, b. iv. p. 105. Lettres Edif. tom. vi. p. 329. Major Roger's North America, p. 211. Creuxii Hist. Canad. p. 57.

[4] Robertson, b. iv. p. 106. Raynal, Hist. des Indes, tom. iv. c. vii. p. 110. 8vo. 10 vol. 1795.

[5] Robertson, b. iv. p. 106. Creuxii Hist. Canad. p. 57. Lafitau, tom. i. p. 590.

[6] Robertson, b. iv. p. 72. Ellis's Voyage, p. 198. Burke's America, vol. i. p. 187.

many of these marriages were unfruitful, which may be accounted for from the libertine lives of the women before wedlock, which he had previously noticed.[1]

The causes that Charlevoix assigns of the sterility of the American women are the suckling their children for several years, during which time they do not cohabit with their husbands; the excessive labour to which they are always condemned, in whatever situation they may be; and the custom established in many places of permitting the young women to prostitute themselves before marriage. Added to this, he says, the extreme misery to which these people are sometimes reduced takes from them all desire of having children.[2] Among some of the ruder tribes it is a maxim not to burthen themselves with rearing more than two of their offspring.[3] When twins are born, one of them is commonly abandoned, as the mother cannot rear them both; and when a mother dies during the period of suckling her child, no chance of preserving its life remains, and, as in New Holland, it is buried in the same grave with the breast that nourished it.[4]

As the parents are frequently exposed to want themselves, the difficulty of supporting their children becomes at times so great that they are reduced to the necessity of abandoning or destroying them.[5] Deformed children are very generally exposed; and, among some of the tribes in South America, the children of mothers who do not bear their labours well, experience a similar fate, from a fear that the offspring may inherit the weakness of its parent.[6]

To causes of this nature we must ascribe the remarkable exemption of the Americans from deformities of make. Even when a mother endeavours to rear all her children without distinction, such a proportion of the whole number perishes under the rigorous treatment which must be their lot in the savage state, that probably none of those who labour under any original weakness or infirmity can attain the age of manhood. If they be not cut off as soon as they are born, they cannot long protract their lives under the severe discipline that awaits them.[7] In the Spanish provinces, where the Indians do not lead so laborious a life, and are prevented from destroying their children, great

[1] Lettres Edif. tom. vii. p. 20, 22. [2] Charlevoix, N. Fr. tom. iii. p. 304.
[3] Robertson, b. iv. p. 107. Lettres Edif. tom. ix. p. 140.
[4] Robertson, b. iv. p. 107. Lettres Edif. tom. viii. p. 86.
[5] Robertson, b. iv. p. 108.
[6] Lafitau, Mœurs des Sauv. tom. i. p. 592.
[7] Charlevoix, tom. iii. p. 303. Raynal, Hist. des Indes, tom. viii. l. xv. p. 22.

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numbers of them are deformed, dwarfish, mutilated, blind, and deaf.[1]

Polygamy seems to have been generally allowed among the Americans, but the privilege was seldom used, except by the caciques and chiefs, and now and then by others in some of the fertile provinces of the South, where subsistence was more easily procured. The difficulty of supporting a family confined the mass of the people to one wife;[2] and this difficulty was so generally known and acknowledged that fathers before they consented to give their daughters in marriage, required unequivocal proofs in the suitor of his skill in hunting, and his consequent ability to support a wife and children.[3] The women, it is said, do not marry early;[4] and this seems to be confirmed by the libertinage among them before marriage, so frequently taken notice of by the missionaries and other writers.[5]

The customs above enumerated, which appear to have been generated principally by the experience of the difficulties attending the rearing of a family, combined with the number of children that must necessarily perish under the hardships of savage life, in spite of the best efforts of their parents to save them,[6] must, without doubt, most powerfully repress the rising generation.

When the young savage has passed safely through the perils of his childhood, other dangers scarcely less formidable await him on his approach to manhood. The diseases to which man is subject in the savage state, though fewer in number, are more violent and fatal than those which prevail in civilised society. As savages are wonderfully improvident, and their means of subsistence always precarious, they often pass from the extreme of want to exuberant plenty, according to the vicissitudes of fortune in the chase or to the variety in the produce of the seasons.[7] Their inconsiderate gluttony in the one case, and their severe abstinence in the other, are equally prejudicial to the human constitution; and their vigour is accordingly at some seasons impaired by want, and at others by a superfluity of gross aliment, and the disorders arising from indigestions.[8] These, which may be considered as the unavoidable consequences of their mode of

[1] Robertson, b. iv. p. 73. Voyage d'Ulloa, tom. i. p. 232.
[2] Robertson, b. iv. p. 102. Lettres Edif. tom. viii. p. 87.
[3] Lettres Edif. tom. ix. p. 364. Robertson, b. iv. p. 115.
[4] Robertson, b. iv. p. 107.
[5] Lettres Edif. passim. Voyage d'Ulloa, tom. i. p. 343. Burke's America, vol. i. p. 187. Charlevoix, tom. iii. p. 303, 304.
[6] Creuxius says, that scarcely one in thirty reaches manhood (Hist. Canad. p. 57); but this must be a very great exaggeration.
[7] Robertson, b. iv. p. 85. [8] Charlevoix, tom. iii. p. 302, 303.

living, cut off considerable numbers in the prime of life. They are likewise extremely subject to consumptions, to pleuritic, asthmatic, and paralytic disorders, brought on by the immoderate hardships and fatigues which they endure in hunting and war, and by the inclemency of the seasons, to which they are continually exposed.[1]

The missionaries speak of the Indians in South America as subject to perpetual diseases for which they know no remedy.[2] Ignorant of the use of the most simple herbs, or of any change in their gross diet, they die of these diseases in great numbers. The Jesuit Fauque says that, in all the different excursions which he had made, he scarcely found a single individual of an advanced age.[3] Robertson determines the period of human life to be shorter among savages than in well-regulated and industrious communities.[4] Raynal, notwithstanding his frequent declamations in favour of savage life, says of the Indians of Canada, that few are so long lived as our people, whose manner of living is more uniform and tranquil.[5] And Cook and Pérouse confirm these opinions in the remarks which they make on some of the inhabitants of the north-west coast of America.[6]

In the vast plains of South America, a burning sun, operating on the extensive swamps and the inundations that succeed the rainy seasons, sometimes produces dreadful epidemics. The missionaries speak of contagious distempers as frequent among the Indians, and occasioning at times a great mortality in their villages.[7] The small-pox everywhere makes great ravages, as, from want of care and from confined habitations, very few that are attacked recover from it.[8] The Indians of Paraguay are said to be extremely subject to contagious distempers, notwithstanding the care and attentions of the Jesuits. The small-pox and malignant fevers, which, from the ravages they make, are called plagues, frequently desolate these flourishing missions; and, according to Ulloa, were the cause that they had not increased in proportion to the time of their establishment, and the profound peace which they had enjoyed.[9]

These epidemics are not confined to the south. They are mentioned as if they were not uncommon among the more

[1] Robertson, b. iv. p. 86. Charlevoix, tom. iii. p. 364. Lafitau, tom. ii. p. 360, 361.
[2] Lettres Edif. tom. viii. p. 83.
[3] Id. tom. vii. p. 317, et seq.
[4] Id. b. iv. p. 86.
[5] Raynal, b. xv. p. 23.
[6] Cook's Third Voy. vol. iii. ch. ii. p. 520. Voy. de Pérouse, ch. ix.
[7] Lettres Edif. tom. viii. p. 79, 339; tom. ix. p. 125.
[8] Voyage d'Ulloa, tom. i. p. 349.
[9] Id. tom. i. p. 549.

northern nations;[1] and, in a late voyage to the north-west coast of America, Captain Vancouver gives an account of a very extraordinary desolation apparently produced by some distemper of this kind. From New Dungeness he traversed a hundred and fifty miles of the coast without seeing the same number of inhabitants. Deserted villages were frequent, each of which was large enough to contain all the scattered savages that had been observed in that extent of country. In the different excursions which he made, particularly about Port Discovery, the skulls, limbs, ribs, and back-bones, or some other vestiges of the human body, were scattered promiscuously in great numbers; and, as no warlike scars were observed on the bodies of the remaining Indians, and no particular signs of fear and suspicion were noticed, the most probable conjecture seems to be that this depopulation must have been occasioned by pestilential disease.[2] The small-pox appears to be common and fatal among the Indians on this coast. Its indelible marks were observed on many, and several had lost the sight of one eye from it.[3]

In general, it may be remarked of savages that, from their extreme ignorance, the dirt of their persons, and the closeness and filth of their cabins,[4] they lose the advantage which usually attends a thinly peopled country, that of being more exempt from pestilential diseases than those which are fully inhabited. In some parts of America the houses are built for the reception of many different families; and fourscore or a hundred people are crowded together under the same roof. When the families live separately, the huts are extremely small, close and wretched, without windows, and with the doors so low that it is necessary to creep on the hands and knees to enter them.[5] On the north-west coast of America, the houses are, in general, of the large kind; and Meares describes one of most extraordinary dimensions, belonging to a chief near Nootka Sound, in which eight hundred persons ate, sat, and slept.[6] All voyagers agree with respect to the filth of the habitations and the personal nastiness of the people on this coast.[7] Captain Cook describes them as

[1] Lettres Edif. tom. vi. p. 335.
[2] Vancouver's Voy. vol. i. b. ii. c. v. p. 256. [3] Id. c. iv. p. 242.
[4] Charlevoix speaks in the strongest terms of the extreme filth and stench of the American cabins, "On ne peut entrer dans leurs cabanes qu'on ne soit impestè:" and the dirt of their meals, he says, "vous feroit horreur." Vol. iii. p. 338.
[5] Robertson, b. iv. p. 182. Voyage d'Ulloa, tom. i. p. 340.
[6] Meares's Voyage, ch. xii. p. 138.
[7] Id. ch. xxiii. p. 252. Vancouver's Voyage, vol. iii. b. vi. c. i. p. 313.

swarming with vermin, which they pick off and eat;[1] and speaks of the state of their habitations in terms of the greatest disgust.[2] Pérouse declares that their cabins have a nastiness and stench to which the den of no known animal in the world can be compared.[3]

Under such circumstances, it may be easily imagined what a dreadful havoc an epidemic must make, when once it appears among them; and it does not seem improbable that the degree of filth described should generate distempers of this nature, as the air of their houses cannot be much purer than the atmosphere of the most crowded cities. 301.32 M26/e

Those who escape the dangers of infancy and of disease are constantly exposed to the chances of war; and notwithstanding the extreme caution of the Americans in conducting their military operations, yet, as they seldom enjoy any interval of peace, the waste of their numbers in war is considerable.[4] The rudest of the American nations are well acquainted with the rights of each community to its own dominions.[5] And as it is of the utmost consequence to prevent others from destroying the game in their hunting grounds, they guard this national property with a jealous attention. Innumerable subjects of dispute necessarily arise. The neighbouring nations live in a perpetual state of hostility with each other.[6] The very act of increasing in one tribe must be an act of aggression on its neighbours; as a larger range of territory will be necessary to support its increased numbers. The contest will in this case naturally continue, either till the equilibrium is restored by mutual losses, or till the weaker party is exterminated or driven from its country. When the irruption of an enemy desolates their cultivated lands, or drives them from their hunting-grounds, as they have seldom any portable stores, they are generally reduced to extreme want. All the people of the district invaded are frequently forced to take refuge in woods or mountains, which can afford them no subsistence, and where many of them perish.[7] In such a flight each consults alone his individual safety. Children desert their parents, and parents consider their children as strangers. The ties of nature are no longer binding. A father will sell his son for a knife or a hatchet.[8] Famine and distresses of every kind

[1] Cook's Third Voyage, vol. ii. p. 305.
[2] Id. c. iii. p. 316.
[3] Voyage de Pérouse, c. ix. p. 403.
[4] Charlevoix, Hist. de la Nouv. France, tom. iii. 202, 203, 429.
[5] Robertson, b. iv. p. 147.
[6] Id. b. iv. p. 147. Lettres Edif. tom. viii. p. 40, 86, and passim. Cook's Third Voy. vol. ii. p. 324. Meares's Voy. ch. xxiv. p. 267.
[7] Id. b. iv. p. 172. Charlevoix, Nouv. France, tom. iii. p. 203.
[8] Lettres Edif. tom. viii. p. 346.

complete the destruction of those whom the sword had spared; and in this manner whole tribes are frequently extinguished.[1]

Such a state of things has powerfully contributed to generate that ferocious spirit of warfare observable among savages in general, and most particularly among the Americans. Their object in battle is not conquest, but destruction.[2] The life of the victor depends on the death of his enemy; and, in the rancour and fell spirit of revenge with which he pursues him, he seems constantly to bear in mind the distresses that would be consequent on defeat. Among the Iroquois, the phrase by which they express their resolution of making war against an enemy is, "Let us go and eat that nation." If they solicit the aid of a neighbouring tribe, they invite them to eat broth made of the flesh of their enemies.[3] Among the Abnakis, when a body of their warriors enters an enemy's territory, it is generally divided into different parties, of thirty or forty: and the chief says to each, "To you is given such an hamlet to eat, to you such a village,"[4] etc. These expressions remain in the language of some of the tribes in which the custom of eating their prisoners taken in war no longer exists. Cannibalism, however, undoubtedly prevailed in many parts of the new world;[5] and, contrary to the opinion of Dr. Robertson, I cannot but think that it must have had its origin in extreme want, though the custom might afterwards be continued from other motives. It seems to be a worse compliment to human nature and to the savage state to attribute this horrid repast to malignant passions without the goad of necessity, rather than to the great law of self-preservation, which has at times overcome every other feeling, even among the most humane and civilised people. When once it had prevailed, though only occasionally, from this cause, the fear that a savage might feel of becoming a repast to his enemies might easily raise the passion of rancour and revenge to so high a pitch as to urge him to treat his prisoners in this way, though not prompted at the time by hunger.

The missionaries speak of several nations which appeared to use human flesh whenever they could obtain it, as they would the flesh of any of the rarer animals.[6] These accounts may perhaps be exaggerated, though they seem to be confirmed in a great degree by the late voyages to the north-west coast of

[1] Robertson, b. iv. p. 172. Account of North America, by Major Rogers, p. 250.
[2] Robertson, b. iv. p. 150.
[3] Id. p. 164.
[4] Lettres Edif. tom. vi. p. 205.
[5] Robertson, b. iv. p. 164.
[6] Id. tom. viii. p. 105, 271; tom. vi. p. 266.

America, and by Capt. Cook's description of the state of society in the southern island of New Zealand.[1] The people of Nootka Sound appear to be cannibals;[2] and the chief of the district, Maquinna, is said to be so addicted to this horrid banquet that, in cold blood, he kills a slave every moon to gratify his unnatural appetite.[3]

The predominant principle of self-preservation, connected most intimately in the breast of the savage with the safety and power of the community to which he belongs, prevents the admission of any of those ideals of honour and gallantry in war which prevail among more civilised nations. To fly from an adversary that is on his guard, and to avoid a contest where he cannot contend without risk to his own person, and consequently to his community, is the point of honour with the American. The odds of ten to one are necessary to warrant an attack on a person who is armed and prepared to resist; and even then each is afraid of being the first to advance.[4] The great object of the most renowned warrior is by every art of cunning and deceit, by every mode of stratagem and surprise that his invention can suggest, to weaken and destroy the tribes of his enemies with the least possible loss to his own. To meet an enemy on equal terms is regarded as extreme folly. To fall in battle, instead of being reckoned an honourable death,[5] is a misfortune, which subjects the memory of a warrior to the imputation of rashness and imprudence. But to lie in wait day after day, till he can rush upon his prey when most secure, and least able to resist him; to steal in the dead of night upon his enemies, set fire to their huts, and massacre the inhabitants, as they fly naked and defenceless from the flames,[6] are deeds of glory, which will be of deathless memory in the breasts of his grateful countrymen.

This mode of warfare is evidently produced by a consciousness of the difficulties attending the rearing of new citizens under the hardships and dangers of savage life. And these powerful causes of destruction may in some instances be so great as to keep down the population even considerably below the means of subsistence; but the fear that the Americans betray of any diminution of their

[1] Cautious as Captain Cook always is, he says of the New Zealanders, "it was but too evident that they have a great liking for this kind of food." Second Voyage, vol. i. p. 246. And in the last Voyage, speaking of their perpetual hostilities, he says, "and perhaps the desire of a good meal may be no small incitement." Vol. i. p. 137.

[2] Cook's Third Voyage, vol. ii. p. 271.

[3] Meares's Voyage, ch. xxiv. p. 255.

[4] Lettres Edif. tom. vi. p. 360.

[5] Charlevoix, No. Fr. tom. iii. p. 376.

[6] Robertson, b. iv. p. 155. Lettres Edif. tom. vi. p. 182, 360.

society, and their apparent wish to increase it, are no proofs that this is generally the case. The country could not probably support the addition that is coveted in each society; but an accession of strength to one tribe opens to it new sources of subsistence in the comparative weakness of its adversaries; and, on the contrary, a diminution of its numbers, so far from giving greater plenty to the remaining members, subjects them to extirpation or famine from the irruptions of their stronger neighbours.

The Chiriguanes, originally only a small part of the tribe of Guaranis, left their native country in Paraguay, and settled in the mountains towards Peru. They found sufficient subsistence in their new country, increased rapidly, attacked their neighbours, and by superior valour or superior fortune gradually exterminated them, and took possession of their lands; occupying a great extent of country, and having increased, in the course of some years, from three or four thousand to thirty thousand,[1] while the tribes of their weaker neighbours were daily thinned by famine and the sword.

Such instances prove the rapid increase even of the Americans under favourable circumstances, and sufficiently account for the fear which prevails in every tribe of diminishing its numbers, and the frequent wish to increase them,[2] without supposing a superabundance of food in the territory actually possessed.

That the causes,[3] which have been mentioned as affecting the population of the Americans, are principally regulated by the plenty or scarcity of subsistence is sufficiently evinced from the greater frequency of the tribes, and the greater numbers in each, throughout all those parts of the country where, from the vicinity of lakes or rivers, the superior fertility of the soil, or further advances in improvement, food becomes more abundant. In the interior of the provinces bordering on the Orinoco, several hundred miles may be traversed in different directions without finding a single hut, or observing the footsteps of a single creature. In some parts of North America, where the climate

[1] Lettres Edif. tom. viii. p. 243. Les Chiriguanes multiplièrent prodigieusement, et en assez peu d'années leur nombre monta à trente mille ames.

[2] Lafitau, tom. ii. p. 163.

[3] These causes may perhaps appear more than sufficient to keep the population down to the level of the means of subsistence; and they certainly would be so, if the representations given of the unfruitfulness of the Indian women were universally, or even generally true. It is probable that some of the accounts are exaggerated, but it is difficult to say which; and it must be acknowledged that, even allowing for all such exaggerations, they are amply sufficient to establish the point proposed.

is more rigorous and the soil less fertile, the desolation is still greater. Vast tracts of some hundred leagues have been crossed through uninhabited plains and forests.[1] The missionaries speak of journeys of twelve days without meeting a single soul,[2] and of immense tracts of country in which scarcely three or four scattered villages were to be found.[3] Some of these deserts furnished no game,[4] and were therefore entirely desolate; others, which were to a certain degree stocked with it, were traversed in the hunting seasons by parties who encamped and remained in different spots, according to the success they met with, and were therefore really inhabited in proportion to the quantity of subsistence which they yielded.[5]

Other districts of America are described as comparatively fully peopled; such as the borders of the great northern lakes, the shores of Mississippi, Louisiana, and many provinces in South America. The villages here were large, and near each other, in proportion to the superior fruitfulness of the territory in game and fish, and the advances made by the inhabitants in agriculture.[6] The Indians of the great and populous empires of Mexico and Peru sprung undoubtedly from the same stock, and originally possessed the same customs as their ruder brethren; but from the moment when, by a fortunate train of circumstances, they were led to improve and extend their agriculture, a considerable population rapidly followed, in spite of the apathy of the men or the destructive habits of the women. These habits would indeed in a great measure yield to the change of circumstances; and the substitution of a more quiet and sedentary life for a life of perpetual wandering and hardship would immediately render the women more fruitful, and enable them at the same time to attend to the wants of a larger family.

In a general view of the American continent, as described by historians, the population seems to have been spread over the surface very nearly in proportion to the quantity of food which the inhabitants of the different parts, in the actual state of their industry and improvement, could obtain; and that, with few exceptions, it pressed hard against this limit, rather than fell short of it, appears from the frequent recurrence of distress for want of food in all parts of America.

Remarkable instances occur, according to Dr. Robertson, of

[1] Robertson, b. iv. p. 129, 130.
[2] Lettres Edif. tom. vi. p. 357.
[3] Id. p. 321.
[4] Id. tom. ix. p. 145.
[5] Id. tom. vi. p. 66, 81, 345; tom. ix. p. 145.
[6] Id. tom. ix. p. 90, 142. Robertson, b. iv. p. 141.

the calamities which rude nations suffer by famine. As one of them, he mentions an account given by Alvar Nugnez Cabeça de Vaca, one of the Spanish adventurers, who resided almost nine years among the savages of Florida. He describes them as unacquainted with every species of agriculture, and living chiefly upon the roots of different plants, which they procure with great difficulty, wandering from place to place in search of them. Sometimes they kill game, sometimes they catch fish, but in such small quantities that their hunger is so extreme as to compel them to eat spiders, the eggs of ants, worms, lizards, serpents, and a kind of unctuous earth; and, I am persuaded, he says, that if in this country there were any stones, they would swallow them. They preserve the bones of fishes and serpents, which they grind into powder, and eat. The only season when they do not suffer much from famine is when a certain fruit like the opuntia, or prickly-pear, is ripe; but they are sometimes obliged to travel far from their usual place of residence in order to find it. In another place, he observes that they are frequently reduced to pass two or three days without food.[1]

Ellis, in his Voyage to Hudson's Bay, feelingly describes the sufferings of the Indians in that neighbourhood from extreme want. Having mentioned the severity of the climate, he says, "Great as these hardships are which result from the rigour of the cold, yet it may justly be affirmed that they are much inferior to those which they feel from the scarcity of provisions, and the difficulty they are under of procuring them. A story which is related at the factories, and known to be true, will sufficiently prove this, and give the compassionate reader a just idea of the miseries to which these unhappy people are exposed." He then gives an account of a poor Indian and his wife, who, on the failure of game, having eaten up all the skins which they wore as clothing, were reduced to the dreadful extremity of supporting themselves on the flesh of two of their children.[2] In another place, he says, "It has sometimes happened that the Indians who come in summer to trade at the factories, missing the succours they expected, have been obliged to singe off the hair from thousands of beaver-skins, in order to feed upon the leather."[3]

The Abbé Raynal, who is continually reasoning most inconsistently in his comparisons of savage and civilised life, though in one place he speaks of the savage as morally sure of a competent

[1] Robertson, note 28 to p. 117, b. iv.
[2] Id. p. 196.
[3] P. 194.

subsistence, yet, in his account of the nations of Canada, says that though they lived in a country abounding in game and fish, yet in some seasons, and sometimes for whole years, this resource failed them; and famine then occasioned a great destruction among a people who were at too great a distance to assist each other.[1]

Charlevoix, speaking of the inconveniences and distresses to which the missionaries were subject, observes that not unfrequently the evils which he had been describing are effaced by a greater, in comparison of which all the others are nothing. This is famine. It is true, says he, that the savages can bear hunger with as much patience as they show carelessness in providing against it; but they are sometimes reduced to extremities beyond their power to support.[2]

It is the general custom among most of the American nations, even those which have made some progress in agriculture, to disperse themselves in the woods at certain seasons of the year, and to subsist for some months on the produce of the chase, as a principal part of their annual supplies.[3] To remain in their villages exposes them to certain famine;[4] and in the woods they are not always sure to escape it. The most able hunters sometimes fail of success, even where there is no deficiency of game;[5] and in their forests, on the failure of this resource, the hunter or the traveller is exposed to the most cruel want.[6] The Indians, in their hunting excursions, are sometimes reduced to pass three or four days without food;[7] and a missionary relates an account of some Iroquois, who, on one of these occasions, having supported themselves as long as they could by eating the skins which they had with them, their shoes, and the bark of trees, at length, in despair, sacrificed some of the party to support the rest. Out of eleven, five only returned alive.[8]

The Indians, in many parts of South America, live in extreme want,[9] and are sometimes destroyed by absolute famines.[10] The islands, rich as they appeared to be, were peopled fully up to the level of their produce. If a few Spaniards settled in any district, such a small addition of supernumerary mouths soon occasioned

[1] Raynal, Histoire des Indes, tom. viii. l. xv. p. 22.
[2] Hist. N. Fr. tom. iii. p. 338.
[3] Lettres Edif. tom. vi. p. 66, 81, 345; ix. 145.
[4] Id. tom. vi. p. 82, 196, 197, 215; ix. 151.
[5] Charlevoix, N. Fr. tom. iii. p. 201. Hennepin Mœurs des Sauv. p. 78.
[6] Lettres Edif. tom. vi. p. 167, 220.
[7] Id. tom. vi. p. 33.
[8] Id. tom. vi. p. 71.
[9] Id. tom. vii. p. 383; ix. 140.
[10] Id. tom. viii. p. 79.

a severe dearth of provisions.[1] The flourishing Mexican empire was in the same state in this respect; and Cortez often found the greatest difficulty in procuring subsistence for his small body of soldiers.[2] Even the missions of Paraguay, with all the care and foresight of the Jesuits, and notwithstanding that their population was kept down by frequent epidemics, were by no means totally exempt from the pressure of want. The Indians of the Mission of St. Michael are mentioned as having at one time increased so much that the lands capable of cultivation in their neighbourhood produced only half of the grain necessary for their support.[3] Long droughts often destroyed their cattle,[4] and occasioned a failure of their crops; and on these occasions some of the Missions were reduced to the most extreme indigence, and would have perished from famine, but for the assistance of their neighbours.[5]

The late voyages to the north-west coast of America confirm these accounts of the frequent pressure of want in savage life, and show the uncertainty of the resource of fishing, which seems to afford, in general, the most plentiful harvest of food that is furnished by unassisted nature. The sea on the coast near Nootka Sound is seldom or never so much frozen as to prevent the inhabitants from having access to it. Yet from the very great precautions they use in laying up stores for the winter, and their attention to prepare and preserve whatever food is capable of it for the colder seasons, it is evident that the sea at these times yields no fish; and it appears that they often undergo very great hardships from want of provisions in the cold months.[6] During a Mr. Mackay's stay at Nootka Sound, from 1786 to 1787, the length and severity of the winter occasioned a famine. The stock of dried fish was expended, and no fresh supplies of any kind were to be caught; so that the natives were obliged to submit to a fixed allowance, and the chiefs brought every day to our countrymen the stated meal of seven dried herrings' heads. Mr. Meares says that the perusal of this gentleman's journal would shock any mind tinctured with humanity.[7]

Captain Vancouver mentions some of the people to the north of Nootka Sound as living very miserably on a paste made of the inner bark of the pine-tree and cockles.[8] In one of the boat

[1] Robertson, b. iv. p. 121. Burke's America, vol. i. p. 30.
[2] Robertson, b. viii. p. 212.
[3] Lettres Edif. tom. ix. p. 381.
[4] Id. tom. ix. p. 191.
[5] Id. tom. ix. p. 206, 380.
[6] Meares's Voyage, ch. xxiv. p. 266.
[7] Id. ch. xi. p. 132.
[8] Vancouver's Voyage, vol. ii. b. ii. c. ii. p. 273.

excursions a party of Indians was met with who had some halibut, but, though very high prices were offered, they could not be induced to part with any. This, as Captain Vancouver observes, was singular, and indicated a very scanty supply.[1] At Nootka Sound, in the year 1794, fish had become very scarce and bore an exorbitant price; as, either from the badness of the season or from neglect, the inhabitants had experienced the greatest distress for want of provisions during winter.[2]

Pérouse describes the Indians in the neighbourhood of Port François as living during the summer in the greatest abundance by fishing, but exposed in the winter to perish from want.[3]

It is not therefore, as Lord Kaimes imagines, that the American tribes have never increased sufficiently to render the pastoral or agricultural state necessary to them;[4] but, from some cause or other, they have not adopted in any great degree these more plentiful modes of procuring subsistence, and therefore have not increased so as to become populous. If hunger alone could have prompted the savage tribes of America to such a change in their habits, I do not conceive that there would have been a single nation of hunters and fishers remaining; but it is evident that some fortunate train of circumstances, in addition to this stimulus, is necessary for the purpose; and it is undoubtedly probable, that these arts of obtaining food will be first invented and improved in those spots which are best suited to them, and where the natural fertility of the situation, by allowing a greater number of people to subsist together, would give the fairest chance to the inventive powers of the human mind.

Among most of the American tribes that we have been considering, so great a degree of equality prevailed that all the members of each community would be nearly equal sharers in the general hardships of savage life and in the pressure of occasional famines. But in many of the more southern nations, as in Bogota,[5] and among the Natchez,[6] and particularly in Mexico and Peru, where a great distinction of ranks prevailed, and the lower classes were in a state of absolute servitude,[7] it is probable that, on occasion of any failure of subsistence, these would be the

[1] Vancouver's Voyage, vol. ii. b. ii. c. ii. p. 282.
[2] Id. vol. iii. b. vi. c. i. p. 304.
[3] Voyage de Pérouse, ch. ix. p. 400.
[4] Sketches of the History of Man, vol. i. p. 99, 105. 8vo. 2nd edit.
[5] Robertson, b. iv. p. 141.
[6] Lettres Edif. tom. vii. p. 21. Robertson, b. iv. p. 139.
[7] Robertson, b. vii. p. 109, 242.

principal sufferers, and that the positive checks to population would act almost exclusively on this part of the community.

The very extraordinary depopulation that has taken place among the American Indians may appear to some to contradict the theory which is intended to be established; but it will be found that the causes of this rapid diminution may all be resolved into the three great checks to population which have been stated; and it is not asserted that these checks, operating from particular circumstances with unusual force, may not, in some instances, be more powerful even than the principle of increase.

The insatiable fondness of the Indians for spirituous liquors,[1] which, according to Charlevoix, is a rage that passes all expression,[2] by producing among them perpetual quarrels and contests which often terminate fatally, by exposing them to a new train of disorders which their mode of life unfits them to contend with, and by deadening and destroying the generative faculty in its very source, may alone be considered as a vice adequate to produce the present depopulation. In addition to this, it should be observed that almost everywhere the connection of the Indians with Europeans has tended to break their spirit, to weaken or give a wrong direction to their industry, and in consequence to diminish the sources of subsistence. In St. Domingo, the Indians neglected purposely to cultivate their lands in order to starve out their cruel oppressors.[3] In Peru and Chili, the forced industry of the natives was fatally directed to the digging in the bowels of the earth, instead of cultivating its surface; and, among the northern tribes, the extreme desire to purchase European spirits directed the industry of the greatest part of them, almost exclusively, to the procuring of plenty for the purpose of this exchange,[4] which would prevent their attention to the more fruitful sources of subsistence, and at the same time tend rapidly to destroy the produce of the chase. The number of wild animals, in all the known parts of America, is even more diminished than the number of people.[5] The attention to agriculture has everywhere slackened, rather than increased, as might at first have been expected, from European connection. In no part of America, either North or South, do

[1] Major Rogers's Account of North America, p. 210.
[2] Charlevoix, tom. iii. p. 302.
[3] Robertson, b. ii. p. 185. Burke's America, vol. i. p. 300.
[4] Charlevoix, N. Fr. tom. iii. p. 260.
[5] The general introduction of firearms among the Indians has probably greatly contributed to the diminution of the wild animals.

we hear of any of the Indian nations living in great plenty in consequence of their diminished numbers. It may not therefore be very far from the truth to say that even now, in spite of all the powerful causes of destruction that have been mentioned, the average population of the American nations is, with few exceptions, on a level with the average quantity of food which in the present state of their industry they can obtain.

CHAPTER V

OF THE CHECKS TO POPULATION IN THE ISLANDS OF THE SOUTH SEA

The Abbé Raynal, speaking of the ancient state of the British isles, and of islanders in general, says of them: "It is among these people that we trace the origin of that multitude of singular institutions which retard the progress of population. Anthropophagy, the castration of males, the infibulation of females, late marriages, the consecration of virginity, the approbation of celibacy, the punishments exercised against girls who become mothers at too early an age," etc.[1] These customs, caused by a superabundance of population in islands, have been carried, he says, to the continents, where philosophers of our days are still employed to investigate the reason of them. The Abbé does not seem to be aware that a savage tribe in America surrounded by enemies, or a civilised and populous nation hemmed in by others in the same state, is, in many respects, circumstanced like the islander. Though the barriers to a further increase of population be not so well defined, and so open to common observation, on continents as on islands, yet they still present obstacles that are nearly as insurmountable; and the emigrant, impatient of the distresses which he feels in his own country, is by no means secure of finding relief in another. There is probably no island yet known the produce of which could not be further increased. This is all that can be said of the whole earth. Both are peopled up to their actual produce. And the whole earth is in this respect like an island. But, as the bounds to the number of people on islands, particularly when they are of small extent, are so narrow, and so distinctly marked, that every person must see and acknowledge them, an inquiry into the checks to population on those, of which we have the most authentic accounts, may tend considerably to illustrate the present subject. The question that is asked in Captain Cook's first Voyage, with respect to the thinly scattered savages of New Holland, "By what means the inhabitants of this country are reduced to such a number as it can subsist?"[2] may be

[1] Raynal, Histoire des Indes, vol. ii. liv. iii. p. 3. 10 vols. 8vo. 1795.
[2] Cook's First Voyage, vol. iii. p. 240. 4to.

asked with equal propriety respecting the most populous islands in the South Sea, or the best peopled countries in Europe and Asia. The question, applied generally, appears to me to be highly curious, and to lead to the elucidation of some of the most obscure, yet important points, in the history of human society. I cannot so clearly and concisely describe the precise aim of the first part of the present work as by saying that it is an endeavour to answer this question so applied.

Of the large islands of New Guinea, New Britain, New Caledonia, and the New Hebrides, little is known with certainty. The state of society in them is probably very similar to that which prevails among many of the savage nations of America. They appear to be inhabited by a number of different tribes, who are engaged in frequent hostilities with each other. The chiefs have little authority; and private property being in consequence insecure, provisions have been rarely found on them in abundance.[1] With the large island of New Zealand we are better acquainted; but not in a manner to give us a favourable impression of the state of society among its inhabitants. The picture of it, drawn by Captain Cook in his three different Voyages, contains some of the darkest shades that are anywhere to be met with in the history of human nature. The state of perpetual hostility, in which the different tribes of these people live with each other, seems to be even more striking than among the savages of any part of America;[2] and their custom of eating human flesh, and even their relish for that kind of food, are established beyond a possibility of doubt.[3] Captain Cook, who is by no means inclined to exaggerate the vices of savage life, says of the natives in the neighbourhood of Queen Charlotte's Sound, "If I had followed the advice of all our pretended friends, I might have extirpated the whole race; for the people of each hamlet or village, by turns, applied to me to destroy the other. One would have thought it almost impossible that so striking a proof of the divided state in which these miserable people live could have been assigned."[4] And, in the same chapter, further on, he says, "From my own observations, and the information of Taweiharooa, it appears to me, that the New

[1] See the different accounts of New Guinea and New Britain, in the *Histoire des Navigations aux terres Australes*; and of New Caledonia and the New Hebrides in Cook's Second Voyage, vol. ii. b. iii.

[2] Cook's First Voyage, vol. ii. p. 345. Second Voyage, vol. i. p. 101. Third Voyage, vol. i. p. 161, etc.

[3] Cook's Second Voyage, vol. i. p. 246.

[4] Id. Third Voyage, vol. i. p. 124.

Zealanders must live under perpetual apprehensions of being destroyed by each other; there being few of their tribes that have not, as they think, sustained wrongs from some other tribes, which they are continually upon the watch to revenge. And, perhaps, the desire of a good meal may be no small incitement. . . . Their method of executing their horrible designs is by stealing upon the adverse party in the night; and if they find them unguarded (which, however, I believe, is very seldom the case) they kill every one indiscriminately, not even sparing the women and children. When the massacre is completed, they either feast and gorge themselves on the spot, or carry off as many of the dead bodies as they can, and devour them at home with acts of brutality too shocking to be described. . . . To give quarter, or take prisoners, makes no part of the military law, so that the vanquished can only save their lives by flight. This perpetual state of war and destructive method of conducting it, operates so strongly in producing habitual circumspection, that one hardly ever finds a New Zealander off his guard, either by night or by day." [1]

As these observations occur in the last Voyage, in which the errors of former accounts would have been corrected, and as a constant state of warfare is here represented as prevailing to such a degree that it may be considered as the principal check to the population of New Zealand, little need be added on this subject. We are not informed whether any customs are practised by the women unfavourable to population. If such be known, they are probably never resorted to, except in times of great distress; as each tribe will naturally wish to increase the number of its members in order to give itself greater power of attack and defence. But the vagabond life which the women of the southern island lead, and the constant state of alarm in which they live, being obliged to travel and work with arms in their hands,[2] must undoubtedly be very unfavourable to gestation, and tend greatly to prevent large families.

Yet powerful as these checks to population are, it appears from the recurrence of seasons of scarcity, that they seldom repress the number of people below the average means of subsistence. "That such seasons there are" (Captain Cook says) "our observations leave us no room to doubt." [3] Fish is a principal part of their food, which, being only to be procured on

[1] Cook's Third Voyage, vol. i. p. 137.
[2] Id. Second Voyage, vol. i. p. 127.
[3] Id. First Voyage, vol. iii. p. 66.

the sea-coast, and at certain times,[1] must always be considered as a precarious resource. It must be extremely difficult to dry and preserve any considerable stores in a state of society subject to such constant alarms; particularly, as we may suppose, that the bays and creeks most abounding in fish would most frequently be the subject of obstinate contest to people who were wandering in search of food.[2] The vegetable productions are, the fern root, yams, clams and potatoes.[3] The three last are raised by cultivation, and are seldom found on the southern island, where agriculture is but little known.[4] On the occasional failure of these scanty resources from unfavourable seasons, it may be imagined that the distress must be dreadful. At such periods it does not seem improbable that the desire of a good meal should give additional force to the desire of revenge, and that they should be "perpetually destroying each other by violence, as the only alternative of perishing by hunger."[5]

If we turn our eyes from the thinly scattered inhabitants of New Zealand to the crowded shores of Otaheite and the Society Islands, a different scene opens to our view. All apprehension of dearth seems at first sight to be banished from a country that is described to be fruitful as the garden of the Hesperides.[6] But this first impression would be immediately corrected by a moment's reflection. Happiness and plenty have always been considered as the most powerful causes of increase. In a delightful climate, where few diseases are known, and the women are condemned to no severe fatigues, why should not these causes operate with a force unparalleled in less favourable regions? Yet if they did, where could the population find room and food in such circumscribed limits? If the numbers in Otaheite, not 40 leagues in circuit, surprised Captain Cook, when he calculated them at two hundred and four thousand,[7] where could they be disposed of in a single century, when they would amount to above three millions, supposing them to double their numbers every twenty-five years.[8] Each island of the group

[1] Cook's First Voyage, vol. iii. p. 45.
[2] Id. Third Voyage, vol. i. p. 157.
[3] Id. First Voyage, vol. iii. p. 43.
[4] Id. vol. ii. p. 405.
[5] Id. vol. iii. p. 45.
[6] Missionary Voyage, Appendix, p. 347.
[7] Cook's Second Voyage, vol. i. p. 349.
[8] I feel very little doubt that this rate of increase is much slower than would really take place, supposing every check to be removed. If Otaheite, with its present produce, were peopled only with a hundred persons, the two sexes in equal numbers, and each man constant to one woman; I cannot but think that, for five or six successive periods, the increase would be more rapid than in any instance hitherto known, and that they would probably double their numbers in less than fifteen years.

would be in a similar situation. The removal from one to another would be a change of place, but not a change of the species of distress. Effectual emigration, or effectual importation, would be utterly excluded, from the situation of the islands and the state of navigation among their inhabitants.

The difficulty here is reduced to so narrow a compass, is so clear, precise and forcible that we cannot escape from it. It cannot be answered in the usual vague and inconsiderate manner, by talking of emigration, and further cultivation. In the present instance, we cannot but acknowledge that the one is impossible, and the other glaringly inadequate. The fullest conviction must stare us in the face that the people on this group of islands could not continue to double their numbers every twenty-five years; and before we proceed to inquire into the state of society on them, we must be perfectly certain that, unless a perpetual miracle render the women barren, we shall be able to trace some very powerful checks to population in the habits of the people.

The successive accounts that we have received of Otaheite and the neighbouring islands leave us no room to doubt the existence of the Eareeoie societies,[1] which have justly occasioned so much surprise among civilised nations. They have been so often described that little more need be said of them here than that promiscuous intercourse and infanticide appear to be their fundamental laws. They consist exclusively of the higher classes; "and" (according to Mr. Anderson)[2] "so agreeable is this licentious plan of life to their disposition, that the most beautiful of both sexes thus commonly spend their youthful days, habituated to the practice of enormities that would disgrace the most savage tribes. . . . When an Eareeoie woman is delivered of a child, a piece of cloth dipped in water is applied to the mouth and nose, which suffocates it."[3] Captain Cook observes, "It is certain that these societies greatly prevent the increase of the superior classes of people, of which they are composed."[4] Of the truth of this observation there can be no doubt.

[1] Cook's First Voyage, vol. ii. p. 207, et seq. Second Voyage, vol. i. p. 352. Third Voyage, vol. ii. p. 157, et seq. Missionary Voyage, Appendix, p. 347. 4to.

[2] Mr. Anderson acted in the capacity of naturalist and surgeon in Cook's last voyage. Captain Cook, and all the officers of the expedition, seem to have had a very high opinion of his talents and accuracy of observation. His accounts, therefore, may be looked upon as of the first authority.

[3] Cook's Third Voyage, vol. ii. p. 158, 159.

[4] Id. Second Voyage, vol. i. p. 352.

Though no particular institutions of the same nature have been found among the lower classes; yet the vices which form their most prominent features are but too generally spread. Infanticide is not confined to the Eareeoies. It is permitted to all; and as its prevalence among the higher classes of the people has removed from it all odium, or imputation of poverty, it is probably often adopted rather as a fashion than a resort of necessity, and appears to be practised familiarly and without reserve.

It is a very just observation of Hume, that the permission of infanticide generally contributes to increase the population of a country.[1] By removing the fears of too numerous a family, it encourages marriage; and the powerful yearnings of nature prevent parents from resorting to so cruel an expedient except in extreme cases. The fashion of the Eareeoie societies, in Otaheite and its neighbouring islands, may have made them an exception to this observation; and the custom has probably here a contrary tendency.

The debauchery and promiscuous intercourse which prevail among the lower classes of people, though in some instances they may have been exaggerated, are established to a great extent on unquestionable authority. Captain Cook, in a professed endeavour to rescue the women of Otaheite from a too general imputation of licentiousness, acknowledges that there are more of this character here than in any other countries; making at the same time a remark of the most decisive nature, by observing that the women who thus conduct themselves do not in any respect lower their rank in society, but mix indiscriminately with those of the most virtuous character.[2]

The common marriages in Otaheite are without any other ceremony than a present from the man to the parents of the girl. And this seems to be rather a bargain with them for permission to try their daughter than an absolute contract for a wife. If the father should think that he has not been sufficiently paid for his daughter, he makes no scruple of forcing her to leave her friend, and to cohabit with another person who may be more liberal. The man is always at liberty to make a new choice. Should his consort become pregnant, he may kill the child, and after that, continue his connexion with the mother, or leave her, according to his pleasure. It is only when he has adopted a child and suffered it to live, that the parties are considered as in

[1] Hume's Essays, vol. i. essay xi. p. 431. 8vo. 1764.
[2] Cook's Second Voyage, vol. i. p. 187.

the marriage state. A younger wife however may afterwards be joined to the first; but the changing of connexions is much more general than this plan, and is a thing so common that they speak of it with great indifference.[1] Libertinism before marriage seems to be no objection to a union of this kind ultimately.

The checks to population from such a state of society would alone appear sufficient to counteract the effects of the most delightful climate, and the most exuberant plenty. Yet these are not all. The wars between the inhabitants of the different islands, and their civil contentions among themselves, are frequent, and sometimes carried on in a very destructive manner.[2] Besides the waste of human life in the field of battle, the conquerors generally ravage the enemy's territory, kill or carry off the hogs and poultry, and reduce as much as possible the means of future subsistence. The island of Otaheite, which, in the years 1767 and 1768, swarmed with hogs and fowls, was, in 1763, so ill supplied with these animals that hardly anything could induce the owners to part with them. This was attributed by Captain Cook principally to the wars which had taken place during that interval.[3] On Captain Vancouver's visit to Otaheite in 1791, he found that most of his friends, whom he had left in 1777, were dead; that there had been many wars since that time, in some of which the chiefs of the western districts of Otaheite had joined the enemy; and that the king had been for a considerable time completely worsted, and his own districts entirely laid waste. Most of the animals, plants and herbs, which Captain Cook had left, had been destroyed by the ravages of war.[4]

The human sacrifices which are frequent in Otaheite, though alone sufficiently strong to fix the stain of barbarism on the character of the natives, do not probably occur in such considerable numbers as materially to affect the population of the country; and the diseases, though they have been dreadfully increased by European contact, were before peculiarly lenient; and, even for some time afterwards, were not marked by any extraordinary fatality.[5]

The great checks to increase appear to be the vices of promiscuous intercourse, infanticide, and war, each of these operating

[1] Cook's Third Voyage, vol. ii. p. 157.
[2] Bougainville, Voy. autour du Monde, ch. iii. p. 217. Cook's First Voyage, vol. ii. p. 244. Missionary Voyage, p. 224.
[3] Cook's Second Voyage, vol. i. p. 182, 183.
[4] Vancouver's Voy. vol. i. b. i. c. 6, p. 98. 4to.
[5] Cook's Third Voy. vol. ii. p. 148.

with very considerable force. Yet, powerful in the prevention and destruction of life as these causes must be, they have not always kept down the population to the level of the means of subsistence. According to Mr. Anderson, "Notwithstanding the extreme fertility of the island, a famine frequently happens, in which it is said many perish. Whether this be owing to the failure of some seasons, to over-population (which must sometimes almost necessarily happen), or wars, I have not been able to determine; though the truth of the fact may fairly be inferred from the great economy that they observe with respect to their food, even when there is plenty." [1] After a dinner with a chief at Ulietea, Captain Cook observed that, when the company rose, many of the common people rushed in, to pick up the crumbs which had fallen, and for which they searched the leaves very narrowly. Several of them daily attended the ships, and assisted the butchers for the sake of the entrails of the hogs which were killed. In general, little seemed to fall to their share, except offals. "It must be owned," Captain Cook says, "that they are exceedingly careful of every kind of provision, and waste nothing that can be eaten by man, flesh and fish especially." [2]

From Mr. Anderson's account, it appears that a very small portion of animal food falls to the lot of the lower class of people, and then it is either fish, sea-eggs, or other marine productions; for they seldom or never eat pork. The king or principal chief is alone able to furnish this luxury every day; and the inferior chiefs, according to their riches, once a week, fortnight, or month.[3] When the dogs and fowls have been diminished by wars or too great consumption, a prohibition is laid upon these articles of food, which continues in force sometimes for several months, or even for a year or two, during which time of course they multiply very fast, and become again plentiful.[4] The common diet even of the Eareeoies, who are among the principal people of the islands, is, according to Mr. Anderson, made up of at least nine-tenths of vegetable food.[5] And as a distinction of ranks is so strongly marked, and the lives and property of the lower classes of people appear to depend absolutely on the will of their chiefs, we may well imagine that these chiefs will often live in plenty, while their vassals and servants are pinched with want.

[1] Cook's Third Voyage, vol. ii. p. 153, 154.
[2] Id. Second Voy. vol. i. p. 176.
[3] Cook's Third Voy. vol. ii. p. 154.
[4] Id. p. 155.
[5] Id. p. 148.

From the late accounts of Otaheite in the Missionary Voyage, it would appear, that the depopulating causes above enumerated have operated with most extraordinary force since Captain Cook's last visit. A rapid succession of destructive wars, during a part of that interval, is taken notice of in the intermediate visit of Captain Vancouver;[1] and from the small proportion of women remarked by the Missionaries,[2] we may infer that a greater number of female infants had been destroyed than formerly. This scarcity of women would naturally increase the vice of promiscuous intercourse, and, aided by the ravages of European diseases, strike most effectually at the root of population.[3]

It is probable that Captain Cook, from the data on which he founded his calculation, may have overrated the population of Otaheite, and perhaps the Missionaries have rated it too low;[4] but I have no doubt that the population has very considerably decreased since Captain Cook's visit, from the different accounts that are given of the habits of the people with regard to economy at the different periods. Captain Cook and Mr. Anderson agree in describing their extreme carefulness of every kind of food; and Mr. Anderson, apparently after a very attentive investigation of the subject, mentions the frequent recurrence of famines. The Missionaries, on the contrary, though they strongly notice the distress from this cause in the Friendly Islands and the Marquesas, speak of the productions of Otaheite as being in the greatest profusion; and observe that notwithstanding the horrible waste committed at feastings, and by the Eareeoie society, want is seldom known.[5]

It would appear, from these accounts, that the population of Otaheite is at present repressed considerably below the average means of subsistence, but it would be premature to conclude that it will continue long so. The variations in the state of the island which were observed by Captain Cook in his different visits appear to prove that there are marked oscillations in its prosperity and population.[6] And this is exactly what we should suppose from theory. We cannot imagine that the population of any of these islands has for ages past remained stationary at a fixed number, or that it can have been regularly increasing, according to any rate, however slow. Great fluctuations must

[1] Vancouver's Voy. vol. i. b. i. c. 7, p. 137.
[2] Missionary Voyage, p. 192 and 385.
[3] Id. Appen. p. 347.
[4] Id. ch. xiii. p. 212.
[5] Id. p. 195. Appen. p. 385.
[6] Cook's Second Voy. vol. i. p. 182, and seq. and 346.

necessarily have taken place. Over-populousness would at all times increase the natural propensity of savages to war; and the enmities occasioned by aggressions of this kind would continue to spread devastation long after the original inconvenience, which might have prompted them, had ceased to be felt.[1] The distresses experienced from one or two unfavourable seasons, operating on a crowded population, which was before living with the greatest economy, and pressing hard against the limits of its food, would, in such a state of society, occasion the more general prevalence of infanticide and promiscuous intercourse;[2] and these depopulating causes would in the same manner continue to act with increased force for some time after the occasion which had aggravated them was at an end. A change of habits to a certain degree, gradually produced by a change of circumstances, would soon restore the population, which could not long be kept below its natural level without the most extreme violence. How far European contact may operate in Otaheite with this extreme violence, and prevent it from recovering its former population, is a point which experience only can determine. But, should this be the case, I have no doubt that, on tracing the causes of it, we shall find them to be aggravated vice and misery.

Of the other islands in the Pacific Ocean we have a less intimate knowledge than of Otaheite; but our information is sufficient to assure us that the state of society in all the principal groups of them is in most respects extremely similar. Among the Friendly and Sandwich islanders, the same feudal system and feudal turbulence, the same extraordinary power of the chiefs and degraded state of the lower orders of society, and nearly the same promiscuous intercourse among a great part of the people, have been found to prevail, as in Otaheite.

In the Friendly Islands, though the power of the king was said to be unlimited, and the life and property of the subject at his disposal; yet it appeared that some of the other chiefs acted like petty sovereigns, and frequently thwarted his measures, of which he often complained. "But however independent" (Captain Cook says) "on the despotic power of the king the great men may be, we saw instances enough to prove that the

[1] Missionary Voy p. 225.

[2] I hope I may never be misunderstood with regard to some of these preventive causes of over-population, and be supposed to imply the slightest approbation of them, merely because I relate their effects. A cause, which may prevent any particular evil, may be beyond all comparison worse than the evil itself.

lower orders of people have no property nor safety for their persons, but at the will of the chiefs to whom they respectively belong."[1] The chiefs often beat the inferior people most unmercifully;[2] and, when any of them were caught in a theft on board the ships, their masters, far from interceding for them, would often advise the killing of them,[3] which, as the chiefs themselves appeared to have no great horror of the crime of theft, could only arise from their considering the lives of these poor people as of little or no value.

Captain Cook, in his first visit to the Sandwich Islands, had reason to think that external wars and internal commotions were extremely frequent among the natives.[4] And Captain Vancouver, in his later account, strongly notices the dreadful devastations in many of the islands from these causes. Incessant contentions had occasioned alterations in the different governments since Captain Cook's visit. Only one chief of all that were known at that time was living; and, on inquiry, it appeared that few had died a natural death, most of them having been killed in these unhappy contests.[5] The power of the chiefs over the inferior classes of the people in the Sandwich Islands appears to be absolute. The people, on the other hand, pay them the most implicit obedience; and this state of servility has manifestly a great effect in debasing both their minds and bodies.[6] The gradations of rank seem to be even more strongly marked here than in the other islands, as the chiefs of higher rank behave to those who are lower in this scale in the most haughty and oppressive manner.[7]

It is not known that either in the Friendly or Sandwich Islands infanticide is practised, or that institutions are established similar to the Eareeoie societies in Otaheite. But it seems to be stated on unquestionable authority that prostitution is extensively diffused, and prevails to a great degree among the lower classes of women;[8] which must always operate as a most powerful check to population. It seems highly probable that the *toutous*, or servants, who spend the greatest part of their time in attendance upon the chiefs,[9] do not often marry; and it is evident that the polygamy allowed to the superior people must tend

[1] Cook's Third Voy. vol. i. p. 406. [2] Id. p. 232. [3] Id. p. 233.
[4] Id. vol. ii. p. 247.
[5] Vancouver, vol. i. b. ii. c. ii. p. 187, 188.
[6] Cook's Third Voy. vol. iii. p. 157. [7] Id.
[8] Id. vol. i. p. 401. Vol. ii. p. 543. Vol. iii. p. 130. Missionary Voy. p. 270.
[9] Cook's Third Voyage, vol. i. p. 394.

greatly to encourage and aggravate the vice of promiscuous intercourse among the inferior classes.

Were it an established fact that in the more fertile islands of the Pacific Ocean very little or nothing was suffered from poverty and want of food, as we could not expect to find among savages in such climates any great degree of moral restraint, the theory on the subject would naturally lead us to conclude that vice, including war, was the principal check to their population. The accounts which we have of these islands strongly confirm this conclusion. In the three great groups of islands which have been noticed, vice appears to be a most prominent feature. In Easter Island, from the great disproportion of the males to the females,[1] it can scarcely be doubted that infanticide prevails, though the fact may not have come to the knowledge of any of our navigators. Pérouse seemed to think that the women in each district were common property to the men of that district,[2] though the numbers of children which he saw[3] would rather tend to contradict this opinion. The fluctuations in the population of Easter Island appear to have been very considerable since its first discovery by Roggewein in 1722, though it cannot have been much affected by European intercourse. From the description of Pérouse it appeared, at the time of his visit, to be recovering its population, which had been in a very low state, probably either from drought, civil dissensions, or the prevalence in an extreme degree of infanticide and promiscuous intercourse. When Captain Cook visited it in his second voyage, he calculated the population at six or seven hundred,[4] Pérouse at two thousand;[5] and, from the number of children which he observed, and the number of new houses that were building, he conceived that the population was on the increase.[6]

In the Marianne Islands, according to Père Gobien, a very great number[7] of the young men remained unmarried, living like the members of the Eareeoie society in Otaheite, and distinguished by a similar name.[8] In the island of Formosa, it is said that the women were not allowed to bring children into the world before the age of thirty-five. If they were with child prior to that period, an abortion was effected by the priestess, and till

[1] Cook's Second Voy. vol. i. p. 289. Voyage de Pérouse, c. iv. p. 323; c. v. p. 336. 4to. 1794.
[2] Pérouse, c. iv. p. 326; c. v. p. 336.
[3] Id. c. v. p. 336.
[4] Cook's Second Voy. vol. i. p. 289.
[5] Pérouse, c. v. p. 336.
[6] Ibid.
[7] Une infinité de jeunes gens.—Hist. des Navigations aux Terres Australes, vol. ii. p. 507.
[8] Cook's Third Voyage, vol. ii. p. 158, note of the Editor.

the husband was forty years of age the wife continued to live in her father's house, and was only seen by stealth.[1]

The transient visits which have been made to some other islands, and the imperfect accounts we have of them, do not enable us to enter into any particular detail of their customs; but, from the general similarity of these customs, as far as has been observed, we have reason to think that, though they may not be marked by some of the more atrocious peculiarities which have been mentioned, vicious habits with respect to women, and wars, are the principal checks to their population.

These however are not all. On the subject of the happy state of plenty in which the natives of the South-Sea Islands have been said to live, I am inclined to think that our imaginations have been carried beyond the truth by the exuberant descriptions which have sometimes been given of these delightful spots. The not unfrequent pressure of want, even in Otaheite, mentioned in Captain Cook's last voyage, has undeceived us with regard to the most fertile of all these islands; and from the Missionary voyage it appears that, at certain times of the year, when the bread-fruit is out of season, all suffer a temporary scarcity. At Oheitahoo, one of the Marquesas, it amounted to hunger, and the very animals were pinched for want of food. At Tongataboo, the principal of the Friendly Islands, the chiefs to secure plenty changed their abodes to other islands,[2] and, at times, many of the natives suffered much from want.[3] In the Sandwich Islands long droughts sometimes occur,[4] hogs and yams are often very scarce,[5] and visitors are received with an unwelcome austerity, very different from the profuse benevolence of Otaheite. In New Caledonia the inhabitants feed upon

[1] Harris's Collection of Voyages, 2 vols. folio edit. 1744, vol. i. p. 794. This relation is given by John Albert de Mandesloe, a German traveller of some reputation for fidelity, though I believe, in this instance, he takes his accounts from the Dutch writers quoted by Montesquieu (Esprit des Loix, liv. 23, ch. 17). The authority is not perhaps sufficient to establish the existence of so strange a custom; though I confess it does not appear to me wholly improbable. In the same account it is mentioned that there is no difference of condition among these people, and that their wars are so bloodless that the death of a single person generally decides them. In a very healthy climate, where the habits of the people were favourable to population and a community of good was established, as no individual would have reason to fear *particular poverty* from a large family, the government would be in a manner compelled to take upon itself the suppression of the population by law; and, as this would be the greatest violation of every natural feeling, there cannot be a more forcible argument against a community of goods.

[2] Missionary Voy. Appen. p. 385. [3] Id. p. 270.

[4] Vancouver's Voy. vol. ii. b. iii. c. viii. p. 230. [5] Id. c. vii. and viii.

spiders,[1] and are sometimes reduced to eat great pieces of steatite to appease the cravings of their hunger.[2]

These facts strongly prove that, in whatever abundance the productions of these islands may be found at certain periods, or however they may be checked by ignorance, wars, and other causes, the average population, generally speaking, presses hard against the limits of the average food. In a state of society where the lives of the inferior orders of the people seem to be considered by their superiors as of little or no value it is evident that we are very liable to be deceived with regard to the appearances of abundance; and we may easily conceive that hogs and vegetables might be exchanged in great profusion for European commodities by the principal proprietors, while their vassals and slaves were suffering severely from want.

I cannot conclude this general review of that department of human society which has been classed under the name of savage life without observing that the only advantage in it above civilised life that I can discover is the possession of a greater degree of leisure by the mass of the people. There is less work to be done, and consequently there is less labour. When we consider the incessant toil to which the lower classes of society in civilised life are condemned, this cannot but appear to us a striking advantage; but it is probably overbalanced by much greater disadvantages. In all those countries where provisions are procured with facility, a most tyrannical distinction of rank prevails. Blows and violations of property seem to be matters of course; and the lower classes of the people are in a state of comparative degradation, much below what is known in civilised nations. In that part of savage life where a great degree of equality obtains, the difficulty of procuring food and the hardships of incessant war create a degree of labour not inferior to that which is exerted by the lower classes of the people in civilised society, though much more unequally divided.

But though we may compare the labour of these two classes of human society, their privations and sufferings will admit of no comparison. Nothing appears to me to place this in so striking a point of view as the whole tenor of education among the ruder tribes of savages in America. Everything that can contribute to teach the most unmoved patience under the severest pains and misfortunes, everything that tends to harden the heart, and narrow all the sources of sympathy, is most sedulously

[1] Vancouver's Voy. vol. ii. b. iii. ch. xiii. p. 400.
[2] Voyage in search of Pérouse, ch. xiii. p. 420. Eng. transl. 4to.

inculcated on the savage. The civilised man, on the contrary, though he may be advised to bear evil with patience when it comes, is not instructed to be always expecting it. Other virtues are to be called into action besides fortitude. He is taught to feel for his neighbour, or even his enemy, in distress; to encourage and expand his social affections; and, in general, to enlarge the sphere of pleasurable emotions. The obvious inference from these two different modes of education is, that the civilised man hopes to enjoy, the savage expects only to suffer.

The preposterous system of Spartan discipline, and that unnatural absorption of every private feeling in concern for the public, which has sometimes been so absurdly admired, could never have existed but among a people exposed to perpetual hardships and privations from incessant war, and in a state under the constant fear of dreadful reverses of fortune. Instead of considering these phenomena as indicating any peculiar tendency to fortitude and patriotism in the disposition of the Spartans, I should merely consider them as a strong indication of the miserable and almost savage state of Sparta, and of Greece in general at that time. Like the commodities in a market, those virtues will be produced in the greatest quantity for which there is the greatest demand; and where patience under pain and privations, and extravagant patriotic sacrifices, are the most called for, it is a melancholy indication of the misery of the people and the insecurity of the state.

CHAPTER VI

OF THE CHECKS TO POPULATION AMONG THE ANCIENT INHABITANTS OF THE NORTH OF EUROPE

A HISTORY of the early migrations and settlements of mankind, with the motives which prompted them, would illustrate in a striking manner the constant tendency in the human race to increase beyond the means of subsistence. Without some general law of this nature, it would seem as if the world could never have been peopled. A state of sloth, and not of restlessness and activity, seems evidently to be the natural state of man; and this latter disposition could not have been generated but by the strong goad of necessity, though it might afterwards be continued by habit, and the new associations that were formed from it, the spirit of enterprise, and the thirst of martial glory.

We are told that Abraham and Lot had so great substance in cattle that the land would not bear them both that they might dwell together. There was strife between their herdsmen. And Abraham proposed to Lot to separate, and said, "Is not the whole land before thee? If thou wilt take the left hand, then I will go to the right; if thou depart to the right hand, then I will go to the left." [1]

This simple observation and proposal is a striking illustration of that great spring of action which overspread the whole earth with people; and, in the progress of time, drove some of the less fortunate inhabitants of the globe, yielding to irresistible pressure, to seek a scanty subsistence in the burning deserts of Asia and Africa, and the frozen regions of Siberia and North America. The first migrations would naturally find no other obstacles than the nature of the country; but when a considerable part of the earth had been peopled, though but thinly, the possessors of these districts would not yield them to others without a struggle; and the redundant inhabitants of any of the more central spots could not find room for themselves without expelling their nearest neighbours, or at least passing through their territories, which would necessarily give occasion to frequent contests.

The middle latitudes of Europe and Asia seem to have been occupied at an early period of history by nations of shepherds.

[1] Genesis, ch. xiii.

Thucydides gave it as his opinion that the civilised states of Europe and Asia, in his time, could not resist the Scythians united. Yet a country in pasture cannot possibly support so many inhabitants as a country in tillage. But what renders nations of shepherds so formidable is the power which they possess of moving altogether, and the necessity they frequently feel of exerting this power in search of fresh pasture for their herds. A tribe that is rich in cattle has an immediate plenty of food. Even the parent stock may be devoured in case of absolute necessity. The women live in greater ease than among nations of hunters, and are consequently more prolific. The men, bold in their united strength, and confiding in their power of procuring pasture for their cattle by change of place, feel probably but few fears about providing for a family. These combined causes soon produce their natural and invariable effect, an extended population. A more frequent and rapid change of place then becomes necessary. A wider and more extensive territory is successively occupied. A broader desolation extends all around them. Want pinches the less fortunate members of the society; and at length the impossibility of supporting such a number together becomes too evident to be resisted. Young scions are then pushed out from the parent stock, and instructed to explore fresh regions, and to gain happier seats for themselves by their swords.

"The world is all before them where to choose."

Restless from present distress, flushed with the hope of fairer prospects, and animated with the spirit of hardy enterprise, these daring adventurers are likely to become formidable adversaries to all who oppose them. The inhabitants of countries long settled, engaged in the peaceful occupations of trade and agriculture, would not often be able to resist the energy of men acting under such powerful motives of exertion. And the frequent contests with tribes in the same circumstances with themselves, would be so many struggles for existence, and would be fought with a desperate courage, inspired by the reflection that death would be the punishment of defeat, and life the prize of victory.

In these savage contests, many tribes must have been utterly exterminated. Many probably perished by hardships and famine. Others, whose leading star had given them a happier direction, became great and powerful tribes, and in their turn sent off fresh adventurers in search of other seats. These

would at first owe allegiance to their parent tribe; but in a short time the ties which bound them would be little felt, and they would remain friends, or become enemies, according as their power, their ambition, or their convenience might dictate.

The prodigious waste of human life occasioned by this perpetual struggle for room and food would be more than supplied by the mighty power of population, acting in some degree unshackled from the constant habit of migration. A prevailing hope of bettering their condition by change of place, a constant expectation of plunder, a power even, if distressed, of selling their children as slaves, added to the natural carelessness of the barbaric character, would all conspire to raise a population which would remain to be repressed afterwards by famine and war.

The tribes that possessed themselves of the more fruitful regions, though they might win them and maintain them by continual battles, rapidly increased in number and power from the increased means of subsistence; till at length the whole territory, from the confines of China to the shores of the Baltic, was peopled by a various race of barbarians, brave, robust, and enterprising, inured to hardships, and delighting in war.[1] While the different fixed governments of Europe and Asia, by superior population and superior skill, were able to oppose an impenetrable barrier to their destroying hordes, they wasted their superfluous numbers in contests with each other; but the moment that the weakness of the settled governments, or the casual union of many of these wandering tribes, gave them the ascendant in power, the storm discharged itself on the fairest provinces of the earth; and China, Persia, Egypt, and Italy were overwhelmed at different periods in this flood of barbarism.

These remarks are strongly exemplified in the fall of the Roman empire. The shepherds of the north of Europe were long held in check by the vigour of the Roman arms and the terror of the Roman name. The formidable irruption of the Cimbri in search of new settlements, though signalised by the destruction of five consular armies, was at length arrested in its victorious career by Marius; and the barbarians were taught

[1] The various branchings, divisions, and contests of the great Tartar nation are curiously described in the Genealogical History of the Tartars by the Khan Abul Ghazi (translated into English from the French, with additions, in 2 vols. 8vo.); but the misfortune of all history is, that while the particular motives of a few princes and leaders, in their various projects of ambition, are sometimes detailed with accuracy, the general causes which crowd their standards with willing followers are often entirely overlooked.

to repent their rashness by the almost complete extermination of this powerful colony.[1] The names of Julius Cæsar, of Drusus, Tiberius, and Germanicus, impressed on their minds by the slaughter of their countrymen, continued to inspire them with a fear of encroaching on the Roman territory. But they were rather triumphed over than vanquished;[2] and though the armies or colonies which they sent forth were either cut off or forced back into their original seats, the vigour of the great German nation remained unimpaired, and ready to pour forth her hardy sons in constant succession, wherever they could force an opening for themselves by their swords. The feeble reigns of Decius, Gallus, Æmilianus, Valerian, and Gallienus afforded such an opening, and were in consequence marked by a general irruption of barbarians. The Goths, who were supposed to have migrated in the course of some years from Scandinavia to the Euxine, were bribed to withdraw their victorious troops by an annual tribute. But no sooner was the dangerous secret of the wealth and weakness of the Roman empire thus revealed to the world than new swarms of barbarians spread devastation through the frontier provinces and terror as far as the gates of Rome.[3] The Franks, the Allemanni, the Goths, and adventurers of less considerable tribes, comprehended under these general appellations, poured like a torrent on different parts of the empire. Rapine and oppression destroyed the produce of the present and the hope of future harvests. A long and general famine was followed by a wasting plague, which for fifteen years ravaged every city and province of the Roman empire; and, judging from the mortality in some spots, it was conjectured that in a few years war, pestilence, and famine had consumed the moiety of the human species.[4] Yet the tide of emigration still continued at intervals to roll impetuously from the north; and the succession of martial princes, who repaired the misfortunes of their predecessors, and propped the falling fate of the empire, had to accomplish the labours of Hercules in freeing the Roman territory from these barbarous invaders. The Goths, who, in the year 250 and the following years, ravaged the empire both by sea and land with various success, but in the end with the almost total loss of their adventurous bands,[5] in the year 269 sent out an emigration of immense numbers, with their wives

[1] Tacitus de Moribus Germanorum, s. 37.
[2] Id.
[3] Gibbon's Decline and Fall of the Roman Empire, vol. i. c. x. p. 407, et seq. 8vo. Edit. 1783.
[4] Id. vol. i. c. x. p. 455, 456.
[5] Id. vol. i. c. x. p. 431.

and families, for the purpose of settlement.[1] This formidable body, which was said to consist at first of 320,000 barbarians,[2] was ultimately destroyed and dispersed by the vigour and wisdom of the Emperor Claudius. His successor, Aurelian, encountered and vanquished new hosts of the same name that had quitted their settlements in the Ukraine; but one of the implied conditions of the peace was that he should withdraw the Roman forces from Dacia, and relinquish this great province to the Goths and Vandals.[3] A new and most formidable invasion of the Allemanni threatened soon after to sack the mistress of the world, and three great and bloody battles were fought by Aurelian before this destroying host could be exterminated and Italy be delivered from its ravages.[4]

The strength of Aurelian had crushed on every side the enemies of Rome. After his death they seemed to revive with an increase of fury and numbers. They were again vanquished on all sides by the active vigour of Probus. The deliverance of Gaul alone from the German invaders is reported to have cost the lives of four hundred thousand barbarians.[5] The victorious emperor pursued his successes into Germany itself; and the princes of the country, astonished at his presence, and dismayed and exhausted by the ill success of their last emigration, submitted to any terms that the conquerors might impose.[6] Probus, and afterwards Diocletian,[7] adopted the plan of recruiting the exhausted provinces of the empire by granting lands to the fugitive or captive barbarians, and disposing of their superfluous numbers where they might be the least likely to be dangerous to the state; but such colonisations were an insufficient vent for the population of the north, and the ardent temper of the barbarians would not always bend to the slow labours of agriculture.[8] During the vigorous reign of Diocletian, unable to make an effectual impression on the Roman frontiers, the Goths, the Vandals, the Gepidæ, the Burgundians, and the Allemanni wasted each other's strength by mutual hostilities, while the subjects of the empire enjoyed the bloody spectacle, conscious that, whoever vanquished, they vanquished the enemies of Rome.[9]

Under the reign of Constantine the Goths were again formidable. Their strength had been restored by a long peace, and a new generation had arisen which no longer remembered the mis-

[1] Gibbon, vol. ii. c. xi. p. 13.
[2] Id. p. 11.
[3] Id. p. 19, A.D. 270.
[4] Id. p. 26.
[5] Id. vol. ii. c. xii. p. 75.
[6] Id. p. 79, A.D. 277.
[7] Id. c. xiii. p. 132, A.D. 296.
[8] Id. c. xii. p. 84.
[9] Id. c. xiii. p. 130.

fortunes of ancient days.[1] In two successive wars great numbers of them were slain. Vanquished on every side, they were driven into the mountains; and, in the course of a severe campaign, above a hundred thousand were computed to have perished by cold and hunger.[2] Constantine adopted the plan of Probus and his successors in granting lands to those suppliant barbarians who were expelled from their own country. Towards the end of his reign, a competent portion, in the provinces of Pannonia, Thrace, Macedonia, and Italy, was assigned for the habitation and subsistence of three hundred thousand Sarmatians.[3]

The warlike Julian had to encounter and vanquish new swarms of Franks and Allemanni, who, emigrating from their German forests during the civil wars of Constantine, settled in different parts of Gaul, and made the scene of their devastations three times more extensive than that of their conquests.[4] Destroyed and repulsed on every side, they were pursued in five expeditions into their own country;[5] but Julian had conquered as soon as he had penetrated into Germany; and in the midst of that mighty hive, which had sent out such swarms of people as to keep the Roman world in perpetual dread, the principal obstacles to his progress were almost impassable roads and vast unpeopled forests.[6]

Though thus subdued and prostrated by the victorious arms of Julian, this hydra-headed monster rose again after a few years; and the firmness, vigilance, and powerful genius of Valentinian were fully called into action in protecting his dominions from the different irruptions of the Allemanni, the Burgundians, the Saxons, the Goths, the Quadi, and the Sarmatians.[7]

The fate of Rome was at length determined by an irresistible emigration of the Huns from the east and north, which precipitated on the empire the whole body of the Goths;[8] and the continuance of this powerful pressure on the nations of Germany seemed to prompt them to the resolution of abandoning to the fugitives of Sarmatia their woods and morasses, or at least of discharging their superfluous numbers on the provinces of the Roman empire.[9] An emigration of four hundred thousand persons issued from the same coast of the Baltic which had

[1] Gibbon, vol. ii. c. xiv. p. 254, A.D. 322.
[2] Id. vol. iii. c. xviii. p. 125, A.D. 332.
[3] Id. p. 127.
[4] Id. c. xix. p. 215, A.D. 356.
[5] Id. p. 228, and vol. iv. c. xxii. p. 17, from A.D. 357 to 359.
[6] Id. vol. iv. c. xxii. p. 17, and vol. iii. c. xix. p. 229.
[7] Id. vol. iv. c. xxv. from A.D. 364 to 375.
[8] Id. vol. iv. c. xxvi. p. 382, et seq. A.D. 376.
[9] Id. vol. v. c. xxx. p. 213.

poured forth the myriads of Cimbri and Teutones during the vigour of the Republic.[1] When this host was destroyed by war and famine, other adventurers succeeded. The Suevi, the Vandals, the Alani, the Burgundians, passed the Rhine, never more to retreat.[2] The conquerors, who first settled, were expelled or exterminated by new invaders. Clouds of barbarians seemed to collect from all parts of the northern hemisphere. Gathering fresh darkness and terror as they rolled on, the congregated bodies at length obscured the sun of Italy and sunk the western world in night.

In two centuries from the flight of the Goths across the Danube barbarians of various names and lineage had plundered and taken possession of Thrace, Pannonia, Gaul, Britain, Spain, Africa, and Italy.[3] The most horrible devastations and an incredible destruction of the human species accompanied these rapid conquests; and famine and pestilence, which always march in the train of war when it ravages with such inconsiderate cruelty, raged in every part of Europe. The historians of the times, who beheld these scenes of desolation, labour and are at a loss for expressions to describe them; but, beyond the power of language, the numbers and the destructive violence of these barbarous invaders were evinced by the total change which took place in the state of Europe.[4] These tremendous effects, so long and so deeply felt throughout the fairest portions of the earth, may be traced in a great degree to the simple cause of the superiority of the power of population to the means of subsistence.

Machiavel, in the beginning of his history of Florence, says, "The people who inhabit the northern parts that lie between the Rhine and the Danube, living in a healthful and prolific climate, often increase to such a degree, that vast numbers of them are forced to leave their native country and go in search of new habitations. When any of those provinces begins to grow too populous and wants to disburden itself, the following method is observed. In the first place, it is divided into three parts, in each of which there is an equal portion of the nobility and commonalty, the rich and the poor. After this they cast lots; and that division on which the lot falls, quits the country and goes to seek its fortune, leaving the other two more room and liberty to enjoy their possessions at home. These emigrations proved the destruction of the Roman Empire."[5] Gibbon is of

[1] Gibbon, vol. v. c. xxx. p. 214, A.D. 406.
[2] Id. p. 224.
[3] Robertson's Charles V. vol. i. sect. i. p. 7. 8vo. 1782.
[4] Id. p. 10, 11, 12.
[5] Istorie Fiorentine Machiavelli, l. i. p. 1, 2.

opinion that Machiavel has represented these emigrations too much as regular and concerted measures;[1] but I think it highly probable that he had not erred much in this respect, and that it was a foresight of the frequent necessity of thus discharging their redundant population which gave occasion to that law among the Germans, taken notice of by Cæsar and Tacitus, of not permitting their cultivated lands to remain longer than a year under the same possessors.[2] The reasons which Cæsar mentions as being assigned for this custom seem to be hardly adequate; but if we add to them the prospect of emigration in the manner described by Machiavel, the custom will appear to be highly useful, and a double weight will be given to one of the reasons that Cæsar mentions; namely, lest they should be led, by being accustomed to one spot, to exchange the toils of war for the business of agriculture.[3]

Gibbon very justly rejects, with Hume and Robertson, the improbable supposition that the inhabitants of the north were far more numerous formerly than at present;[4] but he thinks himself obliged at the same time to deny the strong tendency to increase in the northern nations,[5] as if the two facts were necessarily connected. For a careful distinction should always be made between a redundant population and a population actually great. The Highlands of Scotland are probably more redundant in population than any other part of Great Britain; and though it would be admitting a palpable absurdity to allow that the north of Europe, covered in early ages with immense

[1] Gibbon, vol. i. c. ix. p. 360, note. Paul Diaconus, from whom it is supposed that Machiavel has taken this description, writes thus:—Septentrionalis plaga quantò magis ab æstu solis remota est et nivali frigore gelida, tantò salubrior corporibus hominum et propagandis gentibus magis coaptata. Sicut è contrario, omnis meridiana regio, quòd solis est fervori vicinor, eò morbis est abundantior, et educandis minus apta mortalibus. . . . Multæque quoque ex eâ, eò quod tantas mortalium turmas germinat, quantas alere vix sufficit, sæpe gentes egressæ sunt, quæ non solum partes Asiæ, sed etiam maxime sibi contiguam Europam affixere. (De Gestis Longobardorum, l. i. c. i.)

Intra hanc ergo constituti populi, dum in tantam multitudinem pullulassent, ut jam simul habitare non valerent, in tres (ut fertur) partes omnem catervam dividentes, quænam ex illis patriam esset relictura, ut novas sedes exquirerent, sorte disquirunt. Igitur ea pars, cui sors dederit genitale solum excedere exteraque arva sectari, constitutis supra se duobus ducibus, Ibore scilicet et Agione, qui et Germani erant et juvenili ætate floridi, ceterisque præstantiores, ad exquirandas quas possint incolere terras, sedesque statuere, valedicentes suis simul et patriæ, iter arripiunt. (C. ii.)

[2] De Bello Gallico, vi. 22. De Moribus German, s. xxvi.

[3] De Bello Gallico, vi. 22.

[4] Gibbon, vol. i. c. ix. p. 361.

[5] Id. p. 348.

forests, and inhabited by a race of people who supported themselves principally by their herds and flocks,[1] was more populous in those times than in its present state; yet the facts detailed in the Decline and Fall of the Roman Empire, or even the very slight sketch of them that I have given, cannot rationally be accounted for without the supposition of a most powerful tendency in these people to increase, and to repair their repeated losses by the prolific power of nature.

From the first irruption of the Cimbri to the final extinction of the western empire, the efforts of the German nations to colonise or plunder were unceasing.[2] The numbers that were cut off during this period by war and famine were almost incalculable, and such as could not possibly have been supported with undiminished vigour by a country thinly peopled, unless the stream had been supplied by a spring of very extraordinary power.

Gibbon describes the labours of Valentinian in securing the Gallic frontier against the Germans; an enemy, he says, whose strength was renewed by a stream of daring volunteers which incessantly flowed from the most distant tribes of the north.[3] An easy adoption of strangers was probably a mode by which some of the German nations renewed their strength so suddenly,[4] after the most destructive defeats; but this explanation only removes the difficulty a little further off. It makes the earth rest upon the tortoise; but does not tell us on what the tortoise rests. We may still ask what northern reservoir supplied this incessant stream of daring adventurers? Montesquieu's solution of the problem will, I think, hardly be admitted. The swarms of barbarians which issued formerly from the north, appear no more, he says, at present; and the reason he gives is, that the violence of the Romans had driven the people of the south into the north, who, as long as this force continued, remained there; but as soon as it was weakened, spread themselves again over every country.

The same phenomenon appeared after the conquests and tyrannies of Charlemagne and the subsequent dissolution of his empire; and if a prince, he says, in the present days were to make similar ravages in Europe, the nations driven into the

[1] Tacitus de Moribus German. sect. v.; Cæsar de Bell. Gall. vi. 22.

[2] Cæsar found in Gaul a most formidable colony under Ariovistus, and a general dread prevailing that in a few years all the Germans would pass the Rhine. De Bell. Gall. i. 31.

[3] Gibbon, vol. iv. c. xxv. p. 283.

[4] Id. ib. note.

north, and resting on the limits of the universe,[1] would there make a stand till the moment when they would inundate or conquer Europe a third time. In a note he observes, "we see to what the famous question is reduced—why the north is no longer so fully peopled as in former times?"

If the famous question, or rather the answer to it, be reduced to this, it is reduced to a miracle; for without some supernatural mode of obtaining food, how these collected nations could support themselves in such barren regions for so long a period as during the vigour of the Roman empire, it is a little difficult to conceive; and one can hardly help smiling at the bold figure of these prodigious crowds making their last determined stand on the limits of the universe, and living, as we must suppose, with the most patient fortitude on air and ice for some hundreds of years, till they could return to their own homes and resume their usual more substantial mode of subsistence.

The whole difficulty, however, is at once removed if we apply to the German nations at that time a fact which is so generally known to have occurred in America, and suppose that, when not checked by wars and famine, they increased at a rate that would double their numbers in twenty-five or thirty years. The propriety, and even the necessity, of applying this rate of increase to the inhabitants of ancient Germany will strikingly appear from that most valuable picture of their manners which has been left us by Tacitus. He describes them as not inhabiting cities, or even of admitting of contiguous settlements. Every person surrounds his house with a vacant space;[2] a circumstance which, besides its beneficial effect as a security from fire, is strongly calculated to prevent the generation, and check the ravages, of epidemics. "They content themselves almost universally with one wife. Their matrimonial bond is strict and severe, and their manners in this respect deserving of the highest praise.[3] They live in a state of well-guarded chastity, corrupted by no seducing spectacles or convivial incitements. Adultery is extremely rare, and no indulgence is shown to a prostitute. Neither beauty, youth, nor riches, can procure her a husband: for none there looks on vice with a smile, or calls mutual seduction the way of the world. To limit the increase of children, or put to death any of the husband's blood, is accounted infamous; and virtuous manners have there more

[1] Les nations adossées aux limites de l'univers y tiendroient ferme. Grandeur et Décad. des Rom. c. xvi. p. 187.

[2] Tacitus de Moribus Germ. s. xvi. [3] Id. s. xviii.

efficacy than good laws elsewhere.[1] Every mother suckles her own children, and does not deliver them into the hands of servants and nurses. The youths partake late of the sexual intercourse, and hence pass the age of puberty unexhausted. Nor are the virgins brought forward. The same maturity, the same full growth, is required; the sexes unite equally matched and robust, and the children inherit the vigour of their parents. The more numerous are a man's kinsmen and relations, the more comfortable is his old age; nor is it any advantage to be childless."[2]

With these manners, and a habit of enterprise and emigration, which would naturally remove all fears about providing for a family, it is difficult to conceive a society with a stronger principle of increase; and we see at once that prolific source of successive armies and colonies, against which the force of the Roman empire so long struggled with difficulty, and under which it ultimately sunk. It is not probable that, for two periods together, or even for one, the population within the confines of Germany ever doubled itself in twenty-five years. Their perpetual wars, the rude state of agriculture, and particularly the very strange custom adopted by most of the tribes of marking their barriers by extensive deserts,[3] would prevent any very great actual increase of numbers. At no one period could the country be called well-peopled, though it was often redundant in population. They abandoned their immense forests to the exercise of hunting, employed in pasturage the most considerable part of their lands, bestowed on the small remainder a rude and careless cultivation, and when the return of famine severely admonished them of the insufficiency of their scanty resources, they accused the sterility of a country which refused to supply the multitude of its inhabitants;[4] but instead of clearing their forests, draining their swamps, and rendering their soil fit to support an extended population, they found it more congenial to their martial habits and impatient dispositions, "to go in quest of food, of plunder, or of glory,"[5] into other countries. These adventurers either gained lands for themselves by their swords or were cut off by the various accidents of war; were received into the Roman armies or dispersed over the Roman territory; or, perhaps, having relieved their country by their absence, returned home laden with spoils, and ready, after

[1] Tacitus de Moribus Germ. s. xix.
[2] Id. s. xx.
[3] Cæsar de Bell. Gall. vi. 23.
[4] Gibbon, vol. i. c. ix. p. 360.
[5] Id. vol. i. c. x. p. 417.

having recruited their diminished numbers, for fresh expeditions. The succession of human beings appears to have been most rapid; and as fast as some were disposed of in colonies, or mowed down by the scythe of war and famine, others rose in increased numbers to supply their place.

According to this view of the subject, the North could never have been exhausted; and when Dr. Robertson, describing the calamities of these invasions, says that they did not cease till the North, by pouring forth successive swarms, was drained of people, and could no longer furnish instruments of destruction,[1] he will appear to have fallen into the very error which he had before laboured to refute, and to speak as if the northern nations were actually very populous. For they must have been so, if the number of their inhabitants at any one period had been sufficient, notwithstanding the slaughter of war, to people in such a manner Thrace, Pannonia, Gaul, Spain, Africa, Italy, and England, as in some parts not to leave many traces of their former inhabitants. The period of the peopling of these countries, however, he himself mentions as two hundred years;[2] and in such a time new generations would arise that would more than supply every vacancy.

The true cause which put a stop to the continuance of northern emigration was the impossibility any longer of making an impression on the most desirable countries of Europe. They were then inhabited by the descendants of the bravest and most enterprising of the German tribes; and it was not probable that they should so soon degenerate from the valour of their ancestors, as to suffer their lands to be wrested from them by inferior numbers and inferior skill, though perhaps superior hardihood.

Checked for a time by the bravery and poverty of their neighbours by land, the enterprising spirit and overflowing numbers of the Scandinavian nations soon found vent by sea. Feared before the reign of Charlemagne, they were repelled with difficulty by the care and vigour of that great prince; but during the distractions of the empire under his feeble successors, they spread like a devouring flame over Lower Saxony, Friezeland, Holland, Flanders, and the banks of the Rhine as far as Mentz.

After having long ravaged the coasts, they penetrated into the heart of France, pillaged and burnt her fairest towns, levied immense tributes on her monarchs, and at length obtained by grant one of the finest provinces in the kingdom. They made

[1] Robertson's Charles V. vol. i. s. i. p. 11. [2] Id. p. 7.

themselves even dreaded in Spain, Italy, and Greece, spreading everywhere desolation and terror. Sometimes they turned their arms against each other, as if bent on their own mutual destruction; at other times they transported colonies to unknown or uninhabited countries, as if they were willing to repair in one place the horrid destruction of the human race occasioned by their furious ravages in another.[1]

The mal-administration and civil wars of the Saxon kings of England produced the same effect as the weakness which followed the reign of Charlemagne in France;[2] and for two hundred years the British isles were incessantly ravaged, and often in part subdued, by these northern invaders. During the eighth, ninth, and tenth centuries, the sea was covered with their vessels from one end of Europe to the other;[3] and the countries now the most powerful in arts and arms were the prey of their constant depredations. The growing and consolidating strength of these countries at length removed all further prospect of success from such invasions.[4] The nations of the north were slowly and reluctantly compelled to confine themselves within their natural limits and to exchange their pastoral manners, and with them the peculiar facilities of plunder and emigration which they afforded, for the patient labours and slow returns of trade and agriculture. But the slowness of these returns necessarily effected an important change in the manners of the people.

In ancient Scandinavia, during the time of its constant wars and emigrations, few, or none probably, were ever deterred from marrying by the fear of not being able to provide for a family. In modern Scandinavia, on the contrary, the frequency of the marriage union is continually checked by the most imperious and justly-founded apprehensions of this kind. This is most particularly the case in Norway, as I shall have occasion to remark in another place; but the same fears operate in a greater or less degree, though everywhere with considerable force, in all parts of Europe. Happily the more tranquil state of the modern world does not demand such rapid supplies of human beings; and the prolific powers of nature cannot therefore be so generally called into action.

[1] Mallet, Introd. à l'Histoire de Dannemarc, tom. i. c. x. p. 221, 223, 224. 12 mo. 1766.

[2] Id. p. 226.

[3] Id. p. 221.

[4] Perhaps the civilised world could not be considered as perfectly secure from another northern or eastern inundation, till the total change in the art of war, by the introduction of gunpowder, gave to improved skill and knowledge the decided advantage over physical force.

Mallet, in the excellent account of the northern nations which he has prefixed to his History of Denmark, observes that he had not been able to discover any proofs that their emigrations proceeded from want of room at home;[1] and one of the reasons which he gives is, that after a great emigration the countries often remained quite deserted and unoccupied for a long time.[2] But instances of this kind, I am inclined to think, were rare, though they might occasionally happen. With the habits of enterprise and emigration which prevailed in those days, a whole people would sometimes move in search of a more fertile territory. The lands, which they before occupied, must of necessity be left desert for a time; and if there were anything particularly ineligible in the soil or situation, which the total emigration of the people would seem to imply, it might be more congenial to the temper of the surrounding barbarians to provide for themselves better by their swords than to occupy immediately these rejected lands. Such total emigrations proved the unwillingness of the society to divide; but by no means that they were not straitened for room and food at home.

The other reason which Mallet gives is that in Saxony, as well as Scandinavia, vast tracts of land lay in their original uncultivated state, having never been grubbed up or cleared; and that, from the descriptions of Denmark in those times, it appeared that the coasts alone were peopled, but the interior parts formed one vast forest.[3] It is evident that he here falls into the common error of confounding a superfluity of inhabitants with great actual population. The pastoral manners of the people and their habits of war and enterprise, prevented them from clearing and cultivating their lands;[4] and then these very forests, by restraining the sources of subsistence within very narrow bounds, contributed to superfluity of numbers; that is, to a population beyond what the scanty supplies of the country could support.

There is another cause not often attended to, why poor, cold, and thinly-peopled countries tend generally to a superfluity of inhabitants, and are strongly prompted to emigration. In warmer and more populous countries, particularly those abound-

[1] Hist. Dan. tom. i. c. ix. p. 206.
[2] Id. p. 205, 206.
[3] Id. p. 207.
[4] Nec arare terram aut expectare annum tam facile persuaseris, quam vocare hostes et vulnera mereri; pigrum quinimò et iners videtur sudore acquirere quod possis sanguine parare. Tacitus de Mor. Germ. Nothing, indeed, in the history of mankind, is more evident than the extreme difficulty with which habits are changed; and no argument therefore can be more fallacious than to infer that those people are not pinched with want who do not make a proper use of their lands.

ing in great towns and manufactures, an insufficient supply of food can seldom continue long without producing epidemics either in the shape of great and ravaging plagues, or of less violent, though more constant, sicknesses. In poor, cold, and thinly-peopled countries, on the contrary, from the antiseptic quality of the air, the misery arising from insufficient or bad food may continue for a considerable time without producing these effects; and consequently this powerful stimulus to emigration continues to operate for a much longer period.[1]

I would by no means, however, be understood to say that the northern nations never undertook any expeditions unless prompted by straitened food or circumstances at home. Mallet relates, what was probably true, that it was their common custom to hold an assembly every spring, for the purpose of considering in what quarter they should make war;[2] and among a people who nourished so strong a passion for war, and who considered the right of the strongest as a right divine, occasions for it would never be wanting. Besides this pure and disinterested love of war and enterprise, civil dissensions, the pressure of a victorious enemy, a wish for a milder climate, or other causes, might sometimes prompt to emigration; but, in a general view of the subject, I cannot help considering this period of history as affording a very striking illustration of the principle of population; a principle which appears to me to have given the original impulse and spring of action, to have furnished the inexhaustible resources and often prepared the immediate causes of that rapid succession of adventurous irruptions and emigrations which occasioned the fall of the Roman empire; and afterwards, pouring from the thinly-peopled countries of Denmark and Norway for above two hundred years, ravaged and overran a great part of Europe. Without the supposition of a tendency to increase almost as great as in the United States of America, the facts appear to me not to be accounted for;[3] and with such a supposition we cannot be

[1] Epidemics return more or less frequently, according to their various soils, situations, air, etc. Hence some return yearly, as in Egypt and Constantinople; others once in four or five years, as about Tripoli and Aleppo; others, scarce once in ten, twelve, or thirteen years, as in England; others not in less than twenty years, as in *Norway and the Northern Islands*. Short, History of Air, Seasons, etc., vol. ii. p. 344.

[2] Hist. Dan. c. ix. p. 209.

[3] Gibbon, Robertson, and Mallet seem all rather to speak of Jornandes's expression *vagina nationum* as incorrect and exaggerated; but to me it appears exactly applicable, though the other expression, officina gentium, at least their translation of it, *storehouse of nations*, is not accurate.

Ex hâc igitur Scanziâ insulâ, quasi officinâ gentium, aut certè velut vaginâ nationum egressi, etc. Jornandes de Rebus Geticis, p. 83.

at a loss to name the checks to the actual population when we read the disgusting details of those unceasing wars and of that prodigal waste of human life which marked these barbarous periods.

Inferior checks would undoubtedly concur: but we may safely pronounce that among the shepherds of the North of Europe war and famine were the principal checks that kept the population down to the level of their scanty means of subsistence.

CHAPTER VII

OF THE CHECKS TO POPULATION AMONG MODERN PASTORAL NATIONS

THE pastoral tribes of Asia, by living in tents and movable huts, instead of fixed habitations, are still less connected with their territory than the shepherds of the North of Europe. The camp, and not the soil, is the native country of the genuine Tartar. When the forage of a certain district is consumed the tribe makes a regular march to fresh pastures. In the summer it advances towards the north, in the winter returns again to the south; and thus in a time of most profound peace acquires the practical and familiar knowledge of one of the most difficult operations of war. Such habits would strongly tend to diffuse among these wandering tribes the spirit of emigration and conquest. The thirst of rapine, the fear of a too-powerful neighbour, or the inconvenience of scanty pastures, have in all ages been sufficient causes to urge the hordes of Scythia boldly to advance into unknown countries, where they might hope to find a more plentiful subsistence or a less formidable enemy.[1]

In all their invasions, but more particularly when directed against the civilised empires of the south, the Scythian shepherds have been uniformly actuated by a most savage and destructive spirit. When the Moguls had subdued the northern provinces of China, it was proposed, in calm and deliberate council, to exterminate all the inhabitants of that populous country, that the vacant land might be converted to the pasture of cattle. The execution of this horrid design was prevented by the wisdom and firmness of a Chinese mandarin;[2] but the bare proposal of it exhibits a striking picture, not only of the inhuman manner in which the rights of conquest were abused, but of the powerful force of habit among nations of shepherds, and the consequent difficulty of the transition from the pastoral to the agricultural state.

To pursue, even in the most cursory manner, the tide of emigration and conquest in Asia, the rapid increase of some tribes, and the total extinction of others, would lead much too far. During the periods of the formidable irruptions of the Huns, the wide-

[1] Gibbon, vol. iv. c. xxvi. p. 348. [2] Id. vol. vi. c. xxxiv. p. 54.

extended invasions of the Moguls and Tartars, the sanguinary conquests of Attila, Zingis Khan, and Tamerlane, and the dreadful convulsions which attended the dissolution as well as the formation of their empires, the checks to population are but too obvious. In reading of the devastations of the human race in those times, when the slightest motive of caprice or convenience often involved a whole people in indiscriminate massacre,[1] instead of looking for the causes which prevented a further progress in population, we can only be astonished at the force of that principle of increase which could furnish fresh harvests of human beings for the scythe of each successive conqueror. Our inquiries will be more usefully directed to the present state of the Tartar nations, and the ordinary checks to their increase, when not under the influence of these violent convulsions.

The immense country inhabited at present by those descendants of the Moguls and Tartars, who retain nearly the same manners as their ancestors, comprises in it almost all the middle regions of Asia, and possesses the advantage of a very fine and temperate climate. The soil is in general of great natural fertility. There are comparatively but few genuine deserts. The wide-extended plains without a shrub, which have sometimes received that appellation, and which the Russians call steppes, are covered with a luxuriant grass, admirably fitted for the pasture of numerous herds and flocks. The principal defect of this extensive country is a want of water; but it is said that the parts which are supplied with this necessary article would be sufficient for the support of four times the number of its present inhabitants, if it were properly cultivated.[2] Every Orda, or tribe, has a particular canton belonging to it, containing both its summer and winter pastures; and the population of this vast territory, whatever it may be, is probably distributed over its surface nearly in proportion to the degree of actual fertility in the different districts.

Volney justly describes this necessary distribution in speaking of the Bedoweens of Syria. "In the barren cantons, that is, those which are ill furnished with plants, the tribes are feeble and very distant from each other, as in the desert of Suez, that of the Red Sea, and the interior part of the Great Desert. When the soil is better covered, as between Damascus and the Euphrates, the tribes are stronger and less distant. And in the cultivable cantons, as the Pachalic of Aleppo, the Hauran, and the country

[1] Gibbon, vol. vi. c. xxxiv. p. 55.
[2] Geneal. Hist. of Tartars, vol. ii. sec. i. 8vo. 1730.

of Gaza, the encampments are numerous and near each other." [1] Such a distribution of inhabitants, according to the quantity of food which they can obtain in the actual state of their industry and habits, may be applied to Grand Tartary, as well as to Syria and Arabia, and is, in fact, equally applicable to the whole earth, though the commerce of civilised nations prevents it from being so obvious as in the more simple stages of society.

The Mahometan Tartars, who inhabit the western parts of Grand Tartary, cultivate some of their lands, but in so slovenly and insufficient a manner as not to afford a principal source of subsistence.[2] The slothful and warlike genius of the barbarian everywhere prevails, and he does not easily reconcile himself to obtaining by labour what he can hope to acquire by rapine. When the annals of Tartary are not marked by any signal wars and revolutions, its domestic peace and industry are constantly interrupted by petty contests and mutual invasions for the sake of plunder. The Mahometan Tartars are said to live almost entirely by robbing and preying upon their neighbours, as well in peace as in war.[3]

The Usbecks, who possess as masters the kingdom of Chowarasm, leave to their tributary subjects, the Sarts and Turkmans, the finest pastures of their country, merely because their neighbours on that side are too poor or too vigilant to give them hopes of successful plunder. Rapine is their principal resource. They are perpetually making incursions into the territories of the Persians, and of the Usbecks of Great Bucharia: and neither peace nor truce can restrain them, as the slaves and other valuable effects which they carry off form the whole of their riches. The Usbecks and their subjects the Turkmans are perpetually at variance; and their jealousies, fomented often by the princes of the reigning house, keep the country in a constant state of intestine commotion.[4] The Turkmans are always at war with the Curds and the Arabs, who often come and break the horns of their herds, and carry away their wives and daughters.[5]

The Usbecks of Great Bucharia are reckoned the most civilised of all the Mahometan Tartars, yet are not much inferior to the rest in their spirit of rapine.[6] They are always at war with the Persians, and laying waste the fine plains of the province of Chorasan. Though the country which they possess is of the greatest natural fertility, and some of the remains of the ancient

[1] Voy. de Volney, tom. i. ch. xxii. p. 351. 8vo. 1787.
[2] Geneal. Hist. Tart. vol. ii. p. 382.
[3] Id. p. 390.
[4] Id. p. 430, 431.
[5] Id. p. 426.
[6] Id. p. 459.

inhabitants practise the peaceful arts of trade and agriculture; yet neither the aptitude of the soil, nor the example which they have before them, can induce them to change their ancient habits; and they would rather pillage, rob, and kill their neighbours than apply themselves to improve the benefits which nature so liberally offers them.[1]

The Tartars of the Casatshia Orda in Turkestan live in a state of continual warfare with their neighbours to the north and east. In the winter they make their incursions towards the Kalmucks, who, about that time, go to scour the frontiers of Great Bucharia and the parts to the south of their country. On the other side they perpetually incommode the Cosacks of the Yaik and the Nogai Tartars. In the summer they cross the mountains of Eagles, and make inroads into Siberia. And though they are often very ill treated in these incursions, and the whole of their plunder is not equivalent to what they might obtain with very little labour from their lands, yet they choose rather to expose themselves to the thousand fatigues and dangers necessarily attendant on such a life, than apply themselves seriously to agriculture.[2]

The mode of life among the other tribes of Mahometan Tartars presents the same uniform picture, which it would be tiresome to repeat, and for which therefore I refer the reader to the Genealogical History of the Tartars and its valuable notes. The conduct of the author of this history himself, a Chan of Chowarasm, affords a curious example of the savage manner in which the wars of policy, of revenge, or plunder, are carried on in these countries. His invasions of Great Bucharia were frequent; and each expedition was signalised by the ravages of provinces and the utter ruin and destruction of towns and villages. When at any time the number of his prisoners impeded his motions, he made no scruple to kill them on the spot. Wishing to reduce the power of the Turkmans who were tributary to him, he invited all the principal people to a solemn feast, and had them massacred to the number of two thousand. He burnt and destroyed their villages with the most unsparing cruelty, and committed such devastations that the effect of them returned on their authors, and the army of the victors suffered severely from dearth.[3]

The Mahometan Tartars in general hate trade, and make it their business to spoil all the merchants who fall into their hands.[4] The only commerce which is countenanced is the commerce in

[1] Geneal. Hist. Tart. vol. ii. p. 455.
[2] Id. p. 573 et seq.
[3] Id. vol. i. ch. xii.
[4] Id. vol. ii. p. 412.

slaves. These form a principal part of the booty which they carry off in their predatory incursions, and are considered as a chief source of their riches. Those which they have occasion for themselves, either for the attendance on their herds, or as wives and concubines, they keep, and the rest they sell.[1] The Circassian and Daghestan Tartars, and the other tribes in the neighbourhood of Caucasus, living in a poor and mountainous country, and on that account less subject to invasion, generally overflow with inhabitants: and when they cannot obtain slaves in the common way, steal from one another, and even sell their own wives and children.[2] This trade in slaves, so general among the Mahometan Tartars, may be one of the causes of their constant wars; as, when a prospect of a plentiful supply for this kind of traffic offers itself, neither peace nor alliance can restrain them.[3]

The heathen Tartars, the Kalmucks, and Moguls, do not make use of slaves, and are said in general to lead a much more peaceable and harmless life, contenting themselves with the produce of their herds and flocks, which form their sole riches. They rarely make war for the sake of plunder; and seldom invade the territory of their neighbours, unless to revenge a prior attack. They are not, however, without destructive wars. The inroads of the Mahometan Tartars oblige them to constant defence and retaliation; and feuds subsist between the kindred tribes of the Kalmucks and Moguls, which, fomented by the artful policy of the emperor of China, are carried on with such animosity as to threaten the entire destruction of one or other of these nations.[4]

The Bedoweens of Arabia and Syria do not live in greater tranquillity than the inhabitants of Grand Tartary. The very nature of the pastoral state seems to furnish perpetual occasions for war. The pastures which a tribe uses at one period form but a small part of its possessions. A large range of territory is successively occupied in the course of the year; and, as the whole of this is absolutely necessary for the annual subsistence of the tribe, and is considered as appropriated, every violation of it, though the tribe may be at a great distance, is held to be a

[1] Geneal. Hist. Tart. vol. ii. p. 413. [2] Id. p. 413, 414, and ch. xii.

[3] "They justify it as lawful to have many wives, because they say they bring us many children, which we can sell for ready-money, or exchange for necessary conveniences; yet when they have not wherewithal to maintain them, they hold it a piece of charity to murder infants new-born, as also they do such as are sick and past recovery, because they say they free them from a great deal of misery." Sir John Chardin's Travels, Harris's Col. b. iii. c. ii. p. 865.

[4] Geneal. Hist. Tart. vol. ii. p. 545.

just cause of war.[1] Alliances and kindred make these wars more general. When blood is shed, more must expiate it; and as such accidents have multiplied in the lapse of years, the greatest part of the tribes have quarrels between them and live in a state of perpetual hostility.[2] In the times which preceded Mahomet, seventeen hundred battles are recorded by tradition; and a partial truce of two months, which was religiously kept, might be considered, according to a just remark of Gibbon, as still more strongly expressive of their general habits of anarchy and warfare.[3]

The waste of life from such habits might alone appear sufficient to repress their population; but probably their effect is still greater in the fatal check which they give to every species of industry, and particularly to that the object of which is to enlarge the means of subsistence. Even the construction of a well or a reservoir of water requires some funds and labour in advance; and war may destroy in one day the work of many months and the resources of a whole year.[4] The evils seem mutually to produce each other. A scarcity of subsistence might at first perhaps give occasion to the habits of war; and the habits of war in return powerfully contribute to narrow the means of subsistence.

Some tribes, from the nature of the deserts in which they live, seem to be necessarily condemned to a pastoral life;[5] but even those which inhabit soils proper for agriculture have but little temptation to practise this art while surrounded by marauding neighbours. The peasants of the frontier provinces of Syria, Persia, and Siberia, exposed, as they are, to the constant incursions of a devastating enemy, do not lead a life that is to be envied by the wandering Tartar or Arab. A certain degree of security is perhaps still more necessary than richness of soil to encourage the change from the pastoral to the agricultural state; and where this cannot be attained, the sedentary labourer is more exposed to the vicissitudes of fortune than he who leads a wandering life and carries all his property with him.[6] Under the feeble yet oppressive government of the Turks, it is not

[1] Ils se disputeront la terre inculte, comme parmi nous les citoyens se disputent les héritages. Ainsi ils trouveront de fréquentes occasions de guerre pour la nourriture de leurs bestiaux, etc. . . . ils auront autaut de choses à régler par le droit des gens qu'ils en auront peu à décider par le droit civil. Montes. Esprit des Loix, l. xviii. c. xii.

[2] Voy. de Volney, tom. i. c. xxii. p. 361, 362, 363.

[3] Gibbon, vol. ix. c. l. p. 238, 239.

[4] Voy. de Volney, tom. i. c. xxiii. p. 353.

[5] Id. c. xxxiii. p. 350.

[6] Id. p. 354.

uncommon for peasants to desert their villages and betake themselves to a pastoral state, in which they expect to be better able to escape from the plunder of their Turkish masters and Arab neighbours.[1]

It may be said, however, of the shepherd, as of the hunter, that if want alone could effect a change of habits, there would be few pastoral tribes remaining. Notwithstanding the constant wars of the Bedoween Arabs, and the other checks to their increase from the hardships of their mode of life, their population presses so hard against the limits of their food that they are compelled from necessity to a degree of abstinence which nothing but early and constant habit could enable the human constitution to support. According to Volney, the lower classes of the Arabs live in a state of habitual misery and famine.[2] The tribes of the desert deny that the religion of Mahomet was made for them. "For how," they say, "can we perform ablutions when we have no water; how can we give alms when we have no riches; or what occasion can there be to fast during the month of Ramadan, when we fast all the year?"[3]

The power and riches of a Chaik consist in the number of his tribe. He considers it therefore as his interest to encourage population, without reflecting how it may be supported. His own consequence greatly depends on a numerous progeny and kindred;[4] and in a state of society where power generally procures subsistence, each individual family derives strength and importance from its numbers. These ideas act strongly as a bounty upon population; and, co-operating with a spirit of generosity which almost produces a community of goods,[5] contribute to push it to its utmost verge, and to depress the body of the people in the most rigid poverty.

The habits of polygamy, where there have been losses of men in war, tend perhaps also to produce the same effect. Niebuhr observes that polygamy multiplies families till many of their branches sink into the most wretched misery.[6] The descendants of Mahomet are found in great numbers all over the east, and many of them in extreme poverty. A Mahometan is in some degree obliged to polygamy from a principle of obedience to his prophet, who makes one of the greatest duties of man to consist in procreating children to glorify the Creator. Fortunately, individual interest corrects in some degree, as in many other

[1] Voy. de Volney, tom. i. c. xxxiii. p. 350.
[2] Id. c. xxiii. p. 359. [3] Id. p. 380. [4] Id. p. 366.
[5] Id. p. 378. [6] Niebuhr's Travels, vol. ii. c. v. p. 207.

instances, the absurdity of the legislator; and the poor Arab is obliged to proportion his religious obedience to the scantiness of his resources. Yet still the direct encouragements to population are extraordinarily great; and nothing can place in a more striking point of view the futility and absurdity of such encouragements than the present state of those countries. It is universally agreed that, if their population be not less than formerly, it is indubitably not greater; and it follows as a direct consequence that the great increase of some families has absolutely pushed others out of existence. Gibbon, speaking of Arabia, observes that "The measure of population is regulated by the means of subsistence; and the inhabitants of this vast peninsula might be out-numbered by the subjects of a fertile and industrious province." [1] Whatever may be the encouragements to marriage, this measure cannot be passed. While the Arabs retain their present manners, and the country remains in its present state of cultivation, the promise of Paradise to every man who had ten children would but little increase their numbers, though it might greatly increase their misery. Direct encouragements to population have no tendency whatever to change these manners and promote cultivation. Perhaps indeed they have a contrary tendency; as the constant uneasiness from poverty and want which they occasion must encourage the marauding spirit,[2] and multiply the occasions of war.

Among the Tartars, who from living in a more fertile soil are comparatively richer in cattle, the plunder to be obtained in predatory incursions is greater than among the Arabs. And as the contests are more bloody from the superior strength of the tribes, and the custom of making slaves is general, the loss of numbers in war will be more considerable. These two circumstances united enable some hordes of fortunate robbers to live in a state of plenty in comparison of their less enterprising neighbours. Professor Pallas gives a particular account of two wandering tribes subject to Russia, one of which supports itself almost entirely by plunder, and the other lives as peaceably as the restlessness of its neighbours will admit. It may be curious

[1] It is rather a curious circumstance, that a truth so important, which has been stated and acknowledged by so many authors, should so rarely have been pursued to its consequences. People are not every day dying of famine. How then is the population regulated to the measure of the means of subsistence?

[2] Aussi arrive-t-il chaque jour des accidens, des enlèvemens de bestiaux; et cette guerre de maraude est une de celles qui occupent davantage les Arabes. Voy. de Volney, tom. i. c. xxiii. p. 364.

to trace the different checks to population that result from these different habits.

The Kirgisiens, according to Pallas,[1] live at their ease in comparison of the other wandering tribes that are subject to Russia. The spirit of liberty and independence which reigns amongst them, joined to the facility with which they can procure a flock sufficient for their maintenance, prevents any of them from entering into the service of others. They all expect to be treated as brothers; and the rich therefore are obliged to use slaves. It may be asked what are the causes which prevent the lower classes of people from increasing till they became poor.

Pallas has not informed us how far vicious customs with respect to women, or the restraints on marriage from the fear of a family, may have contributed to this effect; but perhaps the description which he gives of their civil constitution and licentious spirit of rapine may alone be almost sufficient to account for it. The Chan cannot exercise his authority but through the medium of a council of principal persons, chosen by the people; and even the decrees thus confirmed are continually violated with impunity.[2] Though the plunder and capture of persons, of cattle, and of merchandise, which the Kirgisiens exercise on their neighbours the Kazalpacs, the Bucharians, the Persians, the Truchemens, the Kalmucks, and the Russians, are prohibited by their laws, yet no person is afraid to avow them. On the contrary, they boast of their successes in this way as of the most honourable enterprises. Sometimes they pass their frontiers alone to seek their fortune, sometimes collect in troops under the command of an able chief, and pillage entire caravans. A great number of Kirgisiens, in exercising this rapine, are either killed or taken into slavery; but about this the nation troubles itself very little. When these ravages are committed by private adventurers, each retains what he has taken, whether cattle or women. The male slaves and the merchandise are sold to the rich, or to foreign traders.[3]

With these habits, in addition to their national wars, which from the fickle and turbulent disposition of the tribe are extremely frequent,[4] we may easily conceive that the checks to population from violent causes may be so powerful as nearly to

[1] Not having been able to procure the work of Pallas on the history of the Mongol nations, I have here made use of a general abridgment of the works of the Russian travellers, in 4 vols. oct. published at Berne and Lausanne in 1781 and 1784, entitled Découvertes Russes, tom. iii. p. 399.
[2] Découv. Russ. tom. iii. p. 389.
[3] Id. p. 396, 397, 398.
[4] Id. p. 378.

preclude all others. Occasional famines may sometimes attack them in their wars of devastation,[1] their fatiguing predatory incursions, or from long droughts and mortality of cattle; but in the common course of things the approach of poverty would be the signal for a new marauding expedition; and the poor Kirgisien would either return with sufficient to support him, or lose his life or liberty in the attempt. He who determines to be rich or die, and does not scruple the means, cannot long live poor.

The Kalmucks, who before their emigration in 1771 inhabited the fertile steppes of the Wolga under the protection of Russia, lived in general in a different manner. They were not often engaged in any very bloody wars;[2] and the power of the Chan being absolute,[3] and the civil administration better regulated than among the Kirgisiens, the marauding expeditions of private adventurers were checked. The Kalmuck women are extremely prolific. Barren marriages are rare, and three or four children are generally seen playing round every hut. From which (observes Pallas) it may naturally be concluded that they ought to have multiplied greatly during the hundred and fifty years that they inhabited tranquilly the steppes of the Wolga. The reasons which he gives for their not having increased so much as might be expected are the many accidents occasioned by falls from horses, the frequent petty wars between their different princes and with their different neighbours; and particularly the numbers among the poorer classes who die of hunger, of misery, and every species of calamity, of which the children are most frequently the victims.[4]

It appears that when this tribe put itself under the protection of Russia, it had separated from the Soongares, and was by no means numerous. The possession of the fertile steppes of the Wolga and a more tranquil life soon increased it, and in 1662 it amounted to fifty thousand families.[5] From this period to 1771,

[1] Cette multitude dévaste tout ce qui se trouve sur son passage; ils emmènent avec eux tout le bétail qu'ils ne consomment pas, et réduisent à l'esclavage les femmes, les enfans, et les hommes, qu'ils n'ont pas massacrés. Découv. Russ. tom. iii. p. 390.

[2] Découv. Russ. tom. iii. p. 221. The tribe is described here under the name of Torgots, which was their appropriate appellation. The Russians called them by the more general name of Kalmucks.

[3] Id. p. 327.

[4] Id. p. 319, 320, 321.

[5] Id. p. 221. Tooke's View of the Russian Empire, vol. ii. b. ii. p. 30. Another instance of rapid increase presents itself in a colony of baptised Kalmucks, who received from Russia a fertile district to settle in. From 8695, which was its number in 1754, it had increased in 1771 to 14,000. Tooke's View of the Russ. Emp. vol. ii. b. ii. p. 32, 33.

the time of its migration, it seems to have increased very slowly. The extent of pastures possessed would not probably admit of a much greater population; as at the time of its flight from these quarters, the irritation of the Chan at the conduct of Russia was seconded by the complaints of the people of the want of pasture for their numerous herds. At this time the tribe amounted to between 55 and 60,000 families. Its fate in this curious migration was what has probably been the fate of many other wandering hordes, who, from scanty pastures or other causes of discontent, have attempted to seek for fresh seats. The march took place in the winter, and numbers perished on this painful journey from cold, famine, and misery. A great part were either killed or taken by the Kirghises; and those who reached their place of destination, though received at first kindly by the Chinese, were afterwards treated with extreme severity.[1]

Before this migration, the lower classes of the Kalmucks had lived in great poverty and wretchedness, and had been reduced habitually to make use of every animal, plant, or root from which it was possible to extract nourishment.[2] They very seldom killed any of their cattle that were in health, except indeed such as were stolen; and these were devoured immediately, for fear of a discovery. Wounded or worn-out horses, and beasts that had died of any disease except a contagious epidemic, were considered as most desirable food. Some of the poorest Kalmucks would eat the most putrid carrion, and even the dung of their cattle.[3] A great number of children perished of course from bad nourishment.[4] In the winter all the lower classes suffered severely from cold and hunger.[5] In general, one-third of their sheep, and often much more, died in the winter in spite of all their care; and if a frost came late in the season after rain and snow, so that the cattle could not get at the grass, the mortality among their herds became general, and the poorer classes were exposed to inevitable famine.[6]

Malignant fevers, generated principally by their putrid food and the putrid exhalations with which they were surrounded, and the small-pox, which was dreaded like the plague, sometimes thinned their numbers;[7] but in general it appears that their population pressed so hard against the limits of their means

[1] Tooke's View of the Russ. Emp. vol. ii. b. ii. p. 29, 30, 31. Découv. Russ. tom. iii. p. 221.
[2] Découv. Russ. tom. iii. p. 275, 276. [3] Id. p. 272, 273, 274.
[4] Id. p. 324. [5] Id. p. 310. [6] Id. p. 270. [7] Id. p. 311, 312, 313.

of subsistence, that want, with the diseases arising from it, might be considered as the principal check to their increase.

A person travelling in Tartary during the summer months would probably see extensive steppes unoccupied, and grass in profusion spoiling for want of cattle to consume it. He would infer perhaps that the country could support a much greater number of inhabitants, even supposing them to remain in their shepherd state. But this might be a hasty and unwarranted conclusion. A horse or any other working animal is said to be strong only in proportion to the strength of his weakest part. If his legs be slender and feeble, the strength of his body will be but of little consequence; or if he wants power in his back and haunches, the strength which he may possess in his limbs can never be called fully into action. The same reasoning must be applied to the power of the earth to support living creatures. The profusion of nourishment which is poured forth in the seasons of plenty cannot all be consumed by the scanty numbers that were able to subsist through the season of scarcity. When human industry and foresight are directed in the best manner, the population which the soil can support is regulated by the average produce throughout the year; but among animals, and in the uncivilised states of man, it will be much below this average. The Tartar would find it extremely difficult to collect and carry with him such a quantity of hay as would feed all his cattle well during the winter. It would impede his motions, expose him to the attacks of his enemies, and an unfortunate day might deprive him of the labours of a whole summer; as in the mutual invasions which occur, it seems to be the universal practice to burn and destroy all the forage and provisions which cannot be carried away.[1] The Tartar therefore provides only for the most valuable of his cattle during the winter, and leaves the rest to support themselves by the scanty herbage which they can pick up. This poor living, combined with the severe cold, naturally destroys a considerable part of them.[2] The population of the tribe is measured by the population of its herds; and the average numbers of the Tartars, as of the horses that run wild in the desert, are kept down so low by the annual

[1] On mit le feu à toutes les meules de blé et de fourrage. . . . Cent cinquante villages également incendiés. Mémoires du Baron de Tott, tom. i. p. 272. He gives a curious description of the devastation of a Tartar army, and of its sufferings in a winter campaign. Cette journée coûta à l'armée plus de 3000 hommes, et 30,000 chevaux, qui périrent de froid, p. 267.

[2] Découvertes Russes, vol. iii. p. 261.

returns of the cold and scarcity of winter, that they cannot consume all the plentiful offerings of summer.

Droughts and unfavourable seasons have, in proportion to their frequency, the same effects as the winter. In Arabia [1] and a great part of Tartary [2] droughts are not uncommon; and if the periods of their return be not above six or eight years, the average population can never much exceed what the soil can support during these unfavourable times. This is true in every situation; but perhaps, in the shepherd state, man is peculiarly exposed to be affected by the seasons; and a great mortality of parent stock is an evil more fatal and longer felt than the failure of a crop of grain. Pallas and the other Russian travellers speak of epizooties as very common in these parts of the world.[3]

As among the Tartars a family is always honourable, and women are reckoned very serviceable in the management of the cattle and the household concerns, it is not probable that many are deterred from marriage from the fear of not being able to support a family.[4] At the same time, as all wives are bought of their parents, it must sometimes be out of the power of the poorer classes to make the purchase. The Monk Rubruquis, speaking of this custom, says that, as parents keep all their daughters till they can sell them, their maids are sometimes very stale before they are married.[5] Among the Mahometan Tartars, female captives would supply the place of wives; [6] but among the Pagan Tartars, who make but little use of slaves, the inability to buy wives must frequently operate on the poorer classes as a check to marriage, particularly as their price would be kept up by the practice of polygamy among the rich.[7]

The Kalmucks are said not to be jealous,[8] and from the frequency of the venereal disease among them [9] we may infer that a certain degree of promiscuous intercourse prevails.

On the whole, therefore, it would appear that in that department of the shepherd life which has been considered in this

[1] Voy. de Volney, vol. i. c. 23, p. 353.
[2] Découv. Russ. tom. i. p. 467; ii. p. 10, 11, 12, etc.
[3] Id. tom. i. p. 290, etc.; ii. p. 11; iv. p. 304.
[4] Geneal. Hist. of the Tartars, vol. ii. p. 407.
[5] Travels of Wm. Rubruquis, in 1253. Harris's Collection of Voy. b. i. c. ii. p. 561.
[6] Découv. Russ. tom. iii. p. 413.
[7] Pallas takes notice of the scarcity of women or superabundance of males among the Kulmucks, notwithstanding the more constant exposure of the male sex to every kind of accident. Découv. Russ. tom. iii. p. 320.
[8] Id. p. 239.
[9] Id. p. 324.

chapter, the principal checks which keep the population down to the level of the means of subsistence are, restraint from inability to obtain a wife, vicious customs with respect to women, epidemics, wars, famine, and the diseases arising from extreme poverty. The three first checks and the last appear to have operated with much less force among the shepherds of the north of Europe.

CHAPTER VIII

OF THE CHECKS TO POPULATION IN DIFFERENT PARTS OF AFRICA

THE parts of Africa visited by Park are described by him as neither well cultivated nor well peopled. He found many extensive and beautiful districts entirely destitute of inhabitants; and in general the borders of the different kingdoms were either very thinly peopled or perfectly deserted. The swampy banks of the Gambia, the Senegal, and other rivers towards the coast, appeared to be unfavourable to population, from being unhealthy;[1] but other parts were not of this description; and it was not possible, he says, to behold the wonderful fertility of the soil, the vast herds of cattle proper both for labour and food, and reflect on the means which presented themselves of vast inland navigation, without lamenting that a country so abundantly gifted by nature should remain in its present savage and neglected state.[2]

The causes of this neglected state clearly appear, however, in the description which Park gives of the general habits of the negro nations. In a country divided into a thousand petty states, mostly independent and jealous of each other, it is natural, he says, to imagine that wars frequently originate from very frivolous provocations. The wars of Africa are of two kinds, one called Killi, that which is openly avowed; and the other, Tegria, plundering or stealing. These latter are very common, particularly about the beginning of the dry season, when the labours of harvest are over, and provisions are plentiful. These plundering excursions always produce speedy retaliation.[3]

The insecurity of property arising from this constant exposure to plunder, must necessarily have a most baneful effect on industry. The deserted state of all the frontier provinces sufficiently proves to what degree it operates. The nature of the climate is unfavourable to the exertion of the negro nations; and, as there are not many opportunities of turning to advantage the surplus produce of their labour, we cannot be surprised

[1] Park's Interior of Africa, c. xx. p. 261. 4to.
[2] Id. c. xxiii. p. 312.
[3] Id. c. xxii. p. 291 and seq.

that they should in general content themselves with cultivating only so much ground as is necessary for their own support.[1] These causes appear adequately to account for the uncultivated state of the country.

The waste of life in these constant wars and predatory incursions must be considerable; and Park agrees with Buffon in stating, that independently of violent causes, longevity is rare among the negroes. At forty, he says, most of them become grey-haired and covered with wrinkles, and few of them survive the age of fifty-five or sixty.[2] Buffon attributes this shortness of life to the premature intercourse of the sexes, and very early and excessive debauchery.[3] On this subject perhaps he has been led into exaggerations; but without attributing too much to this cause, it seems agreeable to the analogy of nature to suppose that, as the natives of hot climates arrive much earlier at maturity than the inhabitants of colder countries, they should also perish earlier.

According to Buffon, the negro-women are extremely prolific; but it appears from Park that they are in the habit of suckling their children two or three years, and as the husband during this time devotes the whole of his attention to his other wives, the family of each wife is seldom numerous.[4] Polygamy is universally allowed among the negro nations;[5] and consequently without a greater superabundance of women than we have reason to suppose, many will be obliged to live unmarried. This hardship will principally fall on the slaves, who, according to Park, are in the proportion of three to one to the free men.[6] A master is not permitted to sell his domestic slaves or those born in his own house, except in case of famine, to support himself and family. We may imagine therefore that he will not suffer them to increase beyond the employment which he has for them. The slaves

[1] Park's Africa, c. xxi. p. 280.

[2] Id. c. xxi. p. 284.

[3] L'usage prémature des femmes est peut-être la cause de la briéveté de leur vie; les enfans sont si débauchés, et si peu contraints par les pères et mères que dès leur plus tendre jeunesse ils se livrent à tout ce que la nature leur suggère; rien n'est si rare que de trouver dans ce peuple quelque fille qui puisse se souvenir du tems auquel elle a cessée d'être vierge. Histoire Naturelle de l'Homme, vol. vi. p. 235. 5th edit. 12mo. 31 vols.

[4] Park's Africa, c. xx. p. 265. As the accounts of Park, and those on which Buffon has founded his observations, are probably accounts of different nations, and certainly at different periods, we cannot infer that either is incorrect because they differ from each other; but as far as Park's observations extend, they are certainly entitled to more credit than any of the travellers which preceded him.

[5] Id. p. 267.

[6] Id. c. xxii. p. 287.

which are purchased, or the prisoners taken in war, are entirely at the disposal of their masters.[1] They are often treated with extreme severity, and in any scarcity of women arising from the polygamy of the free men, would of course be deprived of them without scruple. Few or no women, probably, remain in a state of strict celibacy; but in proportion to the number married, the state of society does not seem to be favourable to increase.

Africa has been at all times the principal mart of slaves. The drains of its population in this way have been great and constant, particularly since their introduction into the European colonies; but perhaps, as Dr. Franklin observes, it would be difficult to find the gap that has been made by a hundred years' exportation of negroes which has blackened half America.[2] For notwithstanding this constant emigration, the loss of numbers from incessant wars, and the checks to increase from vice and other causes, it appears that the population is continually pressing against the limits of the means of subsistence. According to Park, scarce years and famines are frequent. Among the four principal causes of slavery in Africa, he mentions famine next to war;[3] and the express permission given to masters to sell their domestic slaves for the support of their family, which they are not allowed to do on any less urgent occasion,[4] seems to imply the not unfrequent recurrence of severe want. During a great scarcity which lasted for three years in the countries of the Gambia, great numbers of people became slaves. Park was assured by Dr. Laidley that at that time many free men came and begged with great earnestness to be put upon his slave chain to save them from perishing with hunger.[5] While Park was in Manding, a scarcity of provisions was severely felt by the poor, as the following circumstance painfully convinced him. Every evening during his stay, he observed five or six women come to the Mansa's house and receive each of them a certain quantity of corn. "Observe that boy," said Mansa to him, pointing to a fine child about five years of age—"his mother has sold him to me for forty days' provision for herself and the rest of her family. I have bought another boy in the same manner."[6] In Sooseeta, a small Jallonka village, Mr. Park was informed by the master that he could furnish no provisions, as there had lately been a great scarcity in that part of the country. He assured him that before they had gathered in their present crops

[1] Park's Africa, c. xxii. p. 288.
[2] Franklin's Miscell. p. 9.
[3] Park's Africa, c. xxii. p. 295.
[4] Id. p. 288, note.
[5] Id. p. 295.
[6] Id. c. xix. p. 248.

all the inhabitants of Kullo had been for twenty-nine days without tasting corn; during which time they had supported themselves entirely on the yellow powder which is found in the pods of the nitta (so called by the natives), a species of mimosa, and upon the seeds of the bamboo cane, which when properly pounded and dressed taste very much like rice.[1]

It may be said perhaps that as, according to Park's account, much good land remains uncultivated in Africa, the dearths may be attributed to a want of people; but if this were the case, we can hardly suppose that such numbers would yearly be sent out of the country. What the negro nations really want is security of property, and its general concomitant, industry; and without these, an increase of people would only aggravate their distresses. If, in order to fill up those parts which appeared to be deficient in inhabitants, we were to suppose a high bounty given on children, the effects would probably be, the increase of wars, the increase of the exportation of slaves, and a great increase of misery, but little or no real increase of population.[2]

The customs of some nations, and the prejudices of all, operate in some degree like a bounty of this kind. The Shangalla negroes, according to Bruce, hemmed in on every side by active and powerful enemies, and leading a life of severe labour and constant apprehension, feel but little desire for women. It is the wife, and not the man, that is the cause of their polygamy. Though they live in separate tribes or nations, yet these nations are again subdivided into families. In fighting, each family attacks and defends by itself, and theirs is the spoil and plunder who take it. The mothers therefore, sensible of the disadvantages of a small family, seek to multiply it by all the means in their power; and it is by their importunity that the husband suffers himself to be overcome.[3] The motives to polygamy among the Galla are described to be the same, and in both nations the first wife courts the alliance of a second for her husband; and the principal argument she makes use of is, that their families may be joined together and be strong, and that

[1] Park's Africa, c. xxv. p. 336.

[2] The two great requisites just mentioned for a real increase of population, namely, security of property, and its natural concomitant, industry, cannot be expected to exist among the negro nations while the traffic in slaves on the coast gives such constant encouragement to the plundering excursions which Park describes. Were this traffic at an end, we might rationally hope that, before the lapse of any long period, future travellers would be able to give us a more favourable picture of the state of society among the African nations than that drawn by Park.

[3] Bruce's Travels to discover the Source of the Nile, vol. ii. p. 556. 4to.

her children, by being few in number, may not fall a prey to their enemies in the day of battle.[1] It is highly probable that this extreme desire of having large families defeats its own purpose; and that the poverty and misery, which it occasions, cause fewer children to grow up to maturity than if the parents confined their attention to the rearing of a smaller number.

Bruce is a great friend to polygamy, and defends it, in the only way in which it is capable of being defended, by asserting, that in the countries in which it principally prevails the proportion of girls to boys born is two or three to one. A fact so extraordinary however cannot be admitted upon the authority of those vague inquiries on which he founds his opinion. That there are considerably more women living than men in these climates is in the highest degree probable. Even in Europe, where it is known with certainty that more boys are born than girls, the women in general exceed the men in number; and we may imagine that in hot and unhealthy climates, and in a barbarous state of society, the accidents to which the men are exposed must be very greatly increased. The women, by leading a more sedentary life, would suffer less from the effects of a scorching sun and swampy exhalations; they would in general be more exempt from the disorders arising from debauchery; but, above all, they would escape in great measure the ravages of war. In a state of society in which hostilities never cease, the drains of men, from this cause alone, must occasion a great disproportion of the sexes, particularly where it is the custom, as related of the Galla in Abyssinia,[2] to massacre indiscriminately all the males, and save only the marriageable women from the general destruction. The actual disproportion of the sexes arising from these causes probably first gave rise to the permission of polygamy, and has perhaps contributed to make us more easily believe that the proportion of male and female children in hot climates is very different from what we have experienced it to be in the temperate zone.

Bruce, with his usual prejudices on this subject, seems to think that the celibacy of a part of the women is fatal to the population of a country. He observes of Jidda that, on account of the great scarcity of provisions, which is the result of an extraordinary concourse of people to a place almost destitute of the necessaries of life, few of the inhabitants can avail themselves of the privilege granted by Mahomet. They cannot therefore marry more than

[1] Bruce's Travels to discover the Source of the Nile, vol. ii. p. 223.
[2] Id. vol. iv. p. 411.

one wife; and from this cause arises, he says, the want of people, and the large number of unmarried women.[1] But it is evident that the want of people in this barren spot arises solely from the want of provisions, and that, if each man had four wives, the number of people could not be permanently increased by it.

In Arabia Felix, according to Bruce, where every sort of provision is exceedingly cheap, where the fruits of the ground, the general food of man, are produced spontaneously, the support of a number of wives costs no more than that of so many slaves or servants. Their food is the same, and a blue cotton shirt, a habit common to them all, is not more chargeable for the one than for the other. The consequence is, he says, that celibacy in women is prevented, and the number of people increased in a fourfold ratio by polygamy, to what it is in those countries that are monogamous.[2] And yet, notwithstanding this fourfold increase, it does not appear that any part of Arabia is really very populous.

The effect of polygamy in increasing the number of married women and preventing celibacy is beyond dispute; but how far this may tend to increase the actual population is a very different consideration. It may perhaps continue to press the population harder against the limits of the food; but the squalid and hopeless poverty which this occasions is by no means favourable to industry; and in a climate in which there appears to be many predisposing causes of sickness, it is difficult to conceive that this state of wretchedness does not powerfully contribute to the extraordinary mortality which has been observed in some of these countries.

According to Bruce, the whole coast of the Red Sea, from Suez to Babelmandel, is extremely unwholesome, but more especially between the tropics. Violent fevers, called there Nedad, make the principal figure in this fatal list, and generally terminate the third day in death.[3] Fear frequently seizes the strangers upon first sight of the great mortality which they observe on their first arrival.

Jidda, and all the parts of Arabia adjacent to the eastern coast of the Red Sea, are in the same manner very unwholesome.[4]

In Gondar, fevers perpetually reign, and the inhabitants are all of the colour of a corpse.[5]

In Sirè, one of the finest countries in the world, putrid fevers of

[1] Bruce, vol. i. c. xi. p. 280.
[2] Id. vol. i. c. xi. p. 281.
[3] Id. vol. iii. p. 33.
[4] Id. vol. i. p. 279.
[5] Id. vol. iii. p. 178.

the very worst kind are almost constant.[1] In the low grounds of Abyssinia, in general, malignant tertians occasion a great mortality.[2] And everywhere the small-pox makes great ravages, particularly among the nations bordering on Abyssinia, where it sometimes extinguishes whole tribes.[3]

The effect of poverty, with bad diet, and, its almost constant concomitant, want of cleanliness, in aggravating malignant distempers, is well known; and this kind of wretchedness seems generally to prevail. Of Tchagassa, near Gondar, Bruce observes that the inhabitants, notwithstanding their threefold harvests, are miserably poor.[4] At Adowa, the capital of Tigré, he makes the same remark, and applies it to all the Abyssinian farmers. The land is let yearly to the highest bidder, and in general the landlord furnishes the seed and receives half of the produce; but it is said that he is a very indulgent master who does not take another quarter for the risk he has run; so that the quantity which comes to the share of the husbandman is not more than sufficient to afford a bare sustenance to his wretched family.[5]

The Agows, one of the most considerable nations of Abyssinia in point of number, are described by Bruce as living in a state of misery and penury scarcely to be conceived. We saw a number of women, he says, wrinkled and sunburnt so as scarcely to appear human, wandering about under a burning sun with one and sometimes two children upon their backs, gathering the seeds of bent grass to make a kind of bread.[6] The Agow women begin to bear children at eleven years old. They marry generally about that age, and there is no such thing as barrenness known among them.[7] In Dixan, one of the frontier towns of Abyssinia, the only trade is that of selling children. Five hundred are exported annually to Arabia; and in times of scarcity, Bruce observes, four times that number.[8]

In Abyssinia polygamy does not regularly prevail. Bruce, indeed, makes rather a strange assertion on this subject; and says that, though we read from the Jesuits a great deal about marriage and polygamy, yet that there is nothing which may be averred more truly than that there is no such thing as marriage in Abyssinia.[9] But, however this may be, it appears clear that few or no women lead a life of celibacy in that country; and that the prolific powers of nature are nearly all called into action,

[1] Bruce, vol. iii. p. 153.
[2] Id. vol. iv. p. 22.
[3] Id. vol. iii. c. iii. p. 68; c. vii. p. 178; vol. i. c. xiii. p. 353.
[4] Id. vol. iii. c. vii. p. 195.
[5] Id. c. v. p. 124.
[6] Id. c. xix. p. 738.
[7] Id. vol. iii. c. xix. p. 739.
[8] Id. c. iii. p. 88.
[9] Id. c. xi. p. 306.

except so far as they are checked by promiscuous intercourse. This, however, from the state of manners described by Bruce, must operate very powerfully.[1]

The check to population from war appears to be excessive. For the last four hundred years, according to Bruce, it has never ceased to lay desolate this unhappy country;[2] and the savage manner in which it is carried on surrounds it with tenfold destruction. When Bruce first entered Abyssinia, he saw on every side ruined villages destroyed to their lowest foundations by Ras Michael in his march to Gondar.[3] In the course of the civil wars, while Bruce was in the country, he says, "The rebels had begun to lay waste Dembea, and burnt all the villages in the plain from south to west, making it like a desert between Michael and Fasil. . . . The King often ascended to the top of the tower of his palace, and contemplated with the greatest displeasure the burning of his rich villages in Dembea."[4] In another place he says, "The whole country of Degwessa was totally destroyed; men, women and children were entirely extirpated without distinction of age or sex; the houses razed to the ground, and the country about it left as desolate as after the deluge. The villages belonging to the king were as severely treated; an universal cry was heard from all parts, but no one dared to suggest any means of help."[5] In Maitsha, one of the provinces of Abyssinia, he was told that, if ever he met an old man, he might be sure that he was a stranger, as all that were natives died by the lance young.[6]

If the picture of the state of Abyssinia drawn by Bruce be in any degree near the truth, it places in a strong point of view the force of that principle of increase which preserves a population fully up to the level of the means of subsistence under the checks of war, pestilential diseases, and promiscuous intercourse, all operating in an excessive degree.

The nations which border on Abyssinia are universally short-lived. A Shangalla woman at twenty-two is, according to Bruce, more wrinkled and deformed by age than an European woman at sixty.[7] It would appear, therefore, that in all these countries, as among the northern shepherds in the times of their constant emigrations, there is a very rapid succession of human beings; and the difference in the two instances is, that our northern ancestors died out of their own country, whereas these died at

[1] Bruce, vol. iii. c. xi. p. 292.
[2] Id. vol. iv. p. 119.
[3] Id. vol. iii. c. vii. p. 192.
[4] Id. vol. iv. c. v. p. 112.
[5] Id. vol. iv. p. 258.
[6] Id. c. i. p. 14.
[7] Id. vol. ii. p. 559.

home. If accurate registers of mortality were kept among these nations, I have little doubt that it would appear that, including the mortality from wars, 1 in 17 or 18 at the least dies annually, instead of 1 in 34, 36, or 40, as in the generality of European states.

The description which Bruce gives of some parts of the country which he passed through on his return home, presents a picture more dreadful even than the state of Abyssinia, and shows how little population depends on the birth of children, in comparison of the production of food and those circumstances of natural and political situation which influence this produce.

"At half-past six," Bruce says, "we arrived at Garigana, a village whose inhabitants had all perished with hunger the year before; their wretched bones being all unburied and scattered upon the surface of the ground where the village formerly stood. We encamped among the bones of the dead; no space could be found free from them." [1]

Of another town or village in his route he observes, "The strength of Teawa was 25 horse. The rest of the inhabitants might be 1200 naked miserable and despicable Arabs, like the rest of those which live in villages. . . . Such was the state of Teawa. Its consequence was only to remain till Daveina Arabs should resolve to attack it, when its corn-fields being burnt and destroyed in a night by a multitude of horsemen, the bones of its inhabitants scattered upon the earth would be all its remains, like those of the miserable village of Garigana." [2]

"There is no water between Teawa and Beyla. Once Indedidema and a number of villages were supplied with water from wells, and had large crops of Indian corn sown about their possessions. The curse of that country, the Daveina Arabs, have destroyed Indedidema and all the villages about it; filled up their wells, burnt their crops, and exposed all the inhabitants to die by famine." [3]

Soon after leaving Sennaar, he says, "We began to see the effects of the quantity of rain having failed. There was little corn sown, and that so late as to be scarcely above ground. It seems the rains begin later as they pass northward. Many people were here employed in gathering grass-seeds to make a very bad kind of bread. These people appear perfect skeletons, and no wonder, as they live upon such fare. Nothing increases the danger of travelling and prejudice against strangers more,

[1] Bruce, vol. iv. p. 349. [2] Id. p. 353. [3] Id. p. 411.

than the scarcity of provisions in the country through which you are to pass." [1]

"Came to Eltic, a straggling village about half a mile from the Nile, in the north of a large bare plain; all pasture, except the banks of the river which are covered with wood. We now no longer saw any corn sown. The people here were at the same miserable employment as those we had seen before, that of gathering grass-seeds." [2]

Under such circumstances of climate and political situation, though a greater degree of foresight, industry, and security might considerably better their condition and increase their population, the birth of a greater number of children without these concomitants would only aggravate their misery, and leave their population where it was.

The same may be said of the once flourishing and populous country of Egypt. Its present depressed state has not been caused by the weakening of the principle of increase, but by the weakening of the principle of industry and foresight, from the insecurity of property consequent on a most tyrannical and oppressive government. The principle of increase in Egypt at present does all that is possible for it to do. It keeps the population fully up to the level of the means of subsistence; and, were its power ten times greater than it really is, it could do no more.

The remains of ancient works, the vast lakes, canals, and large conduits for water destined to keep the Nile under control, serving as reservoirs to supply a dry year, and as drains and outlets to prevent the superabundance of water in wet years, sufficiently indicate to us that the former inhabitants of Egypt by art and industry contrived to fertilise a much greater quantity of land from the overflowings of their river than is done at present; and to prevent, in some measure, the distresses which are now so frequently experienced from a redundant or insufficient inundation.[3] It is said of the governor Petronius, that effecting by art what was denied by nature, he caused abundance to prevail in Egypt under the disadvantages of such a deficient inundation as had always before been accompanied by dearth.[4] A flood too great is as fatal to the husbandman as one that is deficient; and the ancients had, in consequence, drains and outlets to spread the superfluous waters over the thirsty sands of Lybia, and

[1] Bruce, vol. iv. p. 511. [2] Id. p. 511.
[3] Id. vol. iii. c. xvii. p. 710.
[4] Voyage de Volney, tom. i. c. iii. p. 33. 8vo.

render even the desert habitable. These works are now all out of repair, and by ill management often produce mischief instead of good. The causes of this neglect, and consequently of the diminished means of subsistence, are obviously to be traced to the extreme ignorance and brutality of the government, and the wretched state of the people. The Mamelukes, in whom the principal power resides, think only of enriching themselves, and employ for this purpose what appears to them to be the simplest method, that of seizing wealth wherever it may be found, of wresting it by violence from the possessor, and of continually imposing new and arbitrary contributions.[1] Their ignorance and brutality, and the constant state of alarm in which they live, prevent them from having any views of enriching the country the better to prepare it for their plunder. No public works therefore are to be expected from the government, and no individual proprietor dares to undertake any improvement which might imply the possession of capital, as it would probably be the immediate signal of his destruction. Under such circumstances we cannot be surprised that the ancient works are neglected, that the soil is ill cultivated, and that the means of subsistence, and consequently the population, are greatly reduced. But such is the natural fertility of the Delta from the inundations of the Nile, that even without any capital employed upon the land, without a right of succession, and consequently almost without a right of property, it still maintains a considerable population in proportion to its extent, sufficient, if property were secure, and industry well directed, gradually to improve and extend the cultivation of the country and restore it to its former state of prosperity. It may be safely pronounced of Egypt that it is not the want of population that has checked its industry, but the want of industry that has checked its population.

The immediate causes which keep down the population to the level of the present contracted means of subsistence are but too obvious. The peasants are allowed for their maintenance only sufficient to keep them alive.[2] A miserable sort of bread made of doura without leaven or flavour, cold water, and raw onions make up the whole of their diet. Meat and fat, of which they are passionately fond, never appear but on great occasions, and among those who are more at their ease. Their habitations are huts made of earth, where a stranger would be suffocated with the heat and smoke; and where the diseases generated by want of cleanliness, by moisture, and by bad nourishment often visit

[1] Voyage de Volney, tom. i. c. xii. p. 170. [2] Id. p. 172.

them and commit great ravages. To these physical evils are added a constant state of alarm, the fear of the plunder of the Arabs, and the visits of the Mamelukes, the spirit of revenge transmitted in families, and all the evils of a continual civil war.[1]

In the year 1783 the plague was very fatal; and in 1784 and 1785 a dreadful famine reigned in Egypt, owing to a deficiency in the inundation of the Nile. Volney draws a frightful picture of the misery that was suffered on this occasion. The streets of Cairo, which at first were full of beggars, were soon cleared of all these objects, who either perished or fled. A vast number of unfortunate wretches, in order to escape death, spread themselves over all the neighbouring countries, and the towns of Syria were inundated with Egyptians. The streets and public places were crowded by famished and dying skeletons. All the most revolting modes of satisfying the cravings of hunger were resorted to; the most disgusting food was devoured with eagerness; and Volney mentions the having seen under the walls of ancient Alexandria two miserable wretches seated on the carcase of a camel, and disputing with the dogs its putrid flesh. The depopulation of the two years was estimated at one-sixth of all the inhabitants.[2]

[1] Volney, tom. i. c. xii. p. 173. This sketch of the state of the peasantry in Egypt given by Volney seems to be nearly confirmed by all other writers on the subject; and particularly in a valuable paper entitled *Considérations générales sur l'Agriculture de l'Egypte, par L. Reynier*. (Mémoires sur l'Egypte, tom. iv. p. 1.)

[2] Voy. de Volney, tom. i. c. xii. s. ii.

CHAPTER IX

OF THE CHECKS TO POPULATION IN SIBERIA, NORTHERN AND SOUTHERN

THE inhabitants of the most northern parts of Asia subsist chiefly by hunting and fishing; and we may suppose therefore that the checks to their increase are of the same nature as those which prevail among the American Indians; except that the check from war is considerably less, and the check from famine perhaps greater, than in the temperate regions of America. M. de Lesseps, who travelled from Kamtschatka to Petersburg with the papers of the unfortunate Pérouse, draws a melancholy picture of the misery sometimes suffered in this part of the world from a scarcity of food. He observes, while at Bolcheretsk, a village of Kamtschatka: "Very heavy rains are injurious in this country, because they occasion floods which drive the fish from the rivers. A famine, the most distressing to the poor Kamtschadales, is the result; as happened last year in all the villages along the western coast of the peninsula. This dreadful calamity occurs so frequently in this quarter, that the inhabitants are obliged to abandon their dwellings, and repair with their families to the border of the Kamtschatka river where they hope to find better resources, fish being more plentiful in this river. Mr. Kasloff (the Russian officer who conducted M. de Lesseps) had intended to proceed along the western coast; but the news of this famine determined him, contrary to his wishes, to return rather than be driven to the necessity of stopping half way or perishing with hunger."[1] Though a different route was pursued, yet in the course of the journey almost all the dogs which drew the sledges died for want of food; and every dog as soon as he failed was immediately devoured by the others.[2]

Even in Okotsk, a town of considerable trade, the inhabitants wait with hungry impatience for the breaking up of the river Okhota in the spring. When M. de Lesseps was there, the stock of dried fish was nearly exhausted. Meal was so dear that the common people were unable to purchase it. On drawing the river prodigious numbers of small fish were caught, and the joy

[1] Travels in Kamtschatka, vol. i. p. 147. 8vo. Eng. trans. 1790.
[2] Id. p. 264.

and clamour redoubled at the sight. The most famished were first served. M. de Lesseps feelingly says, "I could not refrain from tears on perceiving the ravenousness of these poor creatures . . . whole families contended for the fish, which were devoured raw before my eyes." [1]

Throughout all the northern parts of Siberia the small-pox is very fatal. In Kamtschatka, according to M. de Lesseps, it has carried off three-fourths [2] of the native inhabitants.

Pallas confirms this account; and, in describing the Ostiacks on the Obi, who live nearly in the same manner, observes that this disorder makes dreadful ravages among them, and may be considered as the principal check to their increase.[3] The extraordinary mortality of the small-pox among these people is very naturally accounted for by the extreme heat, filth, and putrid air of their underground habitations. Three or four Ostiack families are crowded together in one hut; and nothing can be so disgusting as their mode of living. They never wash their hands, and the putrid remains of the fish, and the excrements of the children, are never cleared away. From this description, says Pallas, one may easily form an idea of the stench, the fœtid vapours, and humidity of their Yourts.[4] They have seldom many children. It is a rare thing to see three or four in one family; and the reason given by Pallas is that so many die young on account of their bad nourishment.[5] To this, perhaps, should be added the state of miserable and laborious servitude to which the women are condemned,[6] which certainly prevents them from being prolific.

The Samoyedes, Pallas thinks, are not quite so dirty as the Ostiacks, because they are more in motion during the winter in hunting; but he describes the state of the women amongst them as a still more wretched and laborious servitude; [7] and consequently the check to population from this cause must be greater.

Most of the natives of these inhospitable regions live nearly in the same miserable manner, which it would be therefore mere repetition to describe. From what has been said, we may form a sufficient idea of the principal checks that keep the actual population down to the level of the scanty means of subsistence which these dreary countries afford.

[1] Travels in Kamtschatka, vol. ii. p. 252, 253.
[2] Id. vol. i. p. 128.
[3] Voy. de Pallas, tom. iv. p. 68. 4to. 5 vols. 1788, Paris.
[4] Id. p. 60.
[5] Id. p. 72.
[6] Id. p. 60.
[7] Id. p. 92.

In some of the southern parts of Siberia, and in the districts adjoining the Wolga, the Russian travellers describe the soil to be of extraordinary fertility. It consists in general of a fine black mould of so rich a nature as not to require or even to bear dressing. Manure only makes the corn grow too luxuriantly, and subjects it to fall to the ground and be spoiled. The only mode of recruiting this kind of land which is practised is by leaving it for one year out of three in fallow; and proceeding in this way, there are some grounds the vigour of which is said to be inexhaustible.[1] Yet, notwithstanding the facility with which, as it would appear, the most plentiful subsistence might be procured, many of these districts are thinly peopled, and in none of them, perhaps, does population increase in the proportion that might be expected from the nature of the soil.

Such countries seem to be under that moral impossibility of increasing which is well described by Sir James Steuart.[2] If either from the nature of the government, or the habits of the people, obstacles exist to the settlement of fresh farms or the subdivision of the old ones, a part of the society may suffer want, even in the midst of apparent plenty. It is not enough that a country should have the power of producing food in abundance, but the state of society must be such as to afford the means of its proper distribution; and the reason why population goes on slowly in these countries is, that the small demand for labour prevents that distribution of the produce of the soil which, while the divisions of land remain the same, can alone make the lower classes of society partakers of the plenty which it affords. The mode of agriculture is described to be extremely simple, and to require very few labourers. In some places the seed is merely thrown on the fallow.[3] The buck-wheat is a common culture; and though it is sown very thin, yet one sowing will last five or six years, and produce every year twelve or fifteen times the original quantity. The seed which falls during the time of the harvest is sufficient for the next year, and it is only necessary to pass a harrow once over it in the spring. And this is continued till the fertility of the soil begins to diminish. It is observed, very justly, that the cultivation of no kind of grain can so exactly suit the indolent inhabitants of the plains of Siberia.[4]

With such a system of agriculture, and with few or no manu-

[1] Voy. de Pallas, tom. iv. p. 5.
[2] Polit. Econ. b. i. c. v. p. 30. 4to.
[3] Voy. de Pallas, tom. i. p. 250.
[4] Découv. Russ. vol. iv. p. 329. 8vo. 4 vols. Berne.

factures, the demand for labour must very easily be satisfied. Corn will undoubtedly be very cheap; but labour will in proportion be still cheaper. Though the farmer may be able to provide an ample quantity of food for his own children, yet the wages of his labourer may not be sufficient to enable him to rear up a family with ease.

If, from observing the deficiency of population compared with the fertility of the soil, we were to endeavour to remedy it by giving a bounty upon children, and thus enabling the labourer to rear up a greater number, what would be the consequence? Nobody would want the work of the supernumerary labourers that were thus brought into the market. Though the ample subsistence of a man for a day might be purchased for a penny, yet nobody would give these people a farthing for their labour. The farmer is able to do all that he wishes, all that he thinks necessary in the cultivation of the soil, by means of his own family and the one or two labourers that he might have before. As these people therefore can give him nothing that he wants, it is not to be expected that he should overcome his natural indolence, and undertake a larger and more troublesome concern, merely to provide them gratuitously with food. In such a state of things, when the very small demand for manufacturing labour is satisfied, what are the rest to do? They are, in fact, as completely without the means of subsistence as if they were living upon a barren sand. They must either emigrate to some place where their work is wanted, or perish miserably of poverty. Should they be prevented from suffering this last extremity by a scanty subsistence given to them, in consequence of a scanty and only occasional use of their labour, it is evident that, though they might exist themselves, they would not be in a capacity to marry and continue to increase the population.

If in the best cultivated and most populous countries of Europe the present divisions of land and farms had taken place, and had not been followed by the introduction of commerce and manufactures, population would long since have come to a stand from the total want of motive to further cultivation, and the consequent want of demand for labour; and it is obvious that the excessive fertility of the country now under consideration would rather aggravate than diminish the difficulty.

It will probably be said that, if there were much good land unused, new settlements and divisions would of course take place, and that the redundant population would raise its own food, and generate the demand for it, as in America.

This would, no doubt, be the case under favourable circumstances; if, for instance, in the first place, the land were of such a nature as to afford all the other materials of capital as well as corn; secondly, if such land were to be purchased in small lots, and the property well secured under a free government; and, thirdly, if habits of industry and accumulation generally prevailed among the mass of the people. But the failure of any of these conditions would essentially check, or might altogether stop, the progress of population. Land that would bear the most abundant crops of corn might be totally unfit for extensive and general settlements from a want either of wood or of water. The accumulations of individuals would go most reluctantly and slowly to the land, if the tenures on which farms were held were either insecure or degrading; and no facility of production could effect a permanent increase and proper distribution of the necessaries of life under inveterate habits of indolence and want of foresight.

It is obvious that the favourable circumstances here alluded to have not been combined in Siberia; and even on the supposition of there being no physical defects in the nature of the soil to be overcome, the political and moral difficulties in the way of a rapid increase of population could yield but slowly to the best-directed efforts. In America the rapid increase of agricultural capital is occasioned in a great degree by the savings from the high wages of common labour. The command of thirty or forty pounds at the least is considered as necessary to enable an active young man to begin a plantation of his own in the back settlements. Such a sum may be saved in a few years without much difficulty in America, where labour is in great demand and paid at a high rate; but the redundant labourer of Siberia would find it extremely difficult to collect such funds as would enable him to build a house, to purchase stock and utensils, and to subsist till he could bring his new land into proper order and obtain an adequate return. Even the children of the farmer, when grown up, would not easily provide these necessary funds. In a state of society where the market for corn is extremely narrow, and the price very low, the cultivators are always poor; and though they may be able amply to provide for their family in the simple article of food, yet they cannot realise a capital to divide among their children, and enable them to undertake the cultivation of fresh land. Though this necessary capital might be very small, yet even this small sum the farmer perhaps cannot acquire; for when he grows a greater quantity of corn than usual, he finds no

purchaser for it,[1] and cannot convert it into any permanent article which will enable any of his children to command an equivalent portion of subsistence or labour in future.[2] He often, therefore, contents himself with growing only what is sufficient for the immediate demands of his family and the narrow market to which he is accustomed. And if he has a large family, many of his children probably fall into the rank of labourers, and their further increase is checked, as in the case of the labourer before described, by a want of the means of subsistence.

It is not therefore a direct encouragement to the procreation and rearing of children that is wanted in these countries in order to increase their population; but the creation of an effectual demand for the produce of the soil, by promoting the means of its distribution. This can only be effected by the introduction of manufactures, and by inspiring the cultivator with a taste for them, and thus enlarging the internal market.

The late empress of Russia encouraged both manufacturers and cultivators; and furnished to foreigners of either description capital free of all interest for a certain term of years.[3] These well-directed efforts, added to what had been done by Peter I., had, as might be expected, a considerable effect; and the Russian territories, particularly the Asiatic part of them, which had slumbered for centuries with a population nearly stationary, or at most increasing very languidly, seem to have made a sudden start of late years. Though the population of the more fertile provinces of Siberia be still very inadequate to the richness of the soil, yet in some of them agriculture flourishes in no inconsiderable degree, and great quantities of corn are grown. In a general dearth which happened in 1796, the province of Isetsk was able, notwithstanding a scanty harvest, to supply in the usual manner the founderies and forges of the Ural, besides preserving from the horrors of famine all the neighbouring

[1] Il y a fort peu de débit dans le pays, parceque la plupart des habitans sont cultivateurs, et élèvent eux-mêmes des bestiaux.—Voy. de Pallas, tom. iv. p. 4.

[2] In addition to the causes here mentioned, I have lately been informed that one-of the principal reasons why large tracts of rich land lie uncultivated in this part of the world is the swarm of locusts which at certain seasons covers these districts, and from the ravages of which it is impossible to protect the rising crop.

[3] Tooke's View of the Russian Empire, vol. ii. p. 242. The principal effect, perhaps, of these importations of foreigners was the introduction of free men instead of slaves, and of German industry instead of Russian indolence; but the introduction of that part of capital which consists in machinery would be a very great point, and the cheapness of manufactures would soon give the cultivators a taste for them.

provinces.[1] And in the territory of Krasnoyarsk, on the shores of the Yenissey, in spite of the indolence and drunkenness of the inhabitants, the abundance of corn is so great that no instance has ever been known of a general failure.[2] Pallas justly observes that, if we consider that Siberia not two hundred years ago was a wilderness utterly unknown, and in point of population even far behind the almost desert tracts of North America, we may reasonably be astonished at the present state of this part of the world, and at the multitude of its Russian inhabitants, who in numbers greatly exceed the natives.[3]

When Pallas was in Siberia, provisions in these fertile districts, particularly in the environs of Krasnoyarsk, were most extraordinarily cheap. A pood, or forty pounds, of wheaten flour was sold for about twopence halfpenny, an ox for five or six shillings, and a cow for three or four.[4] This unnatural cheapness, owing to a want of vent for the products of the soil, was perhaps the principal check to industry. In the period which has since elapsed the prices have risen considerably;[5] and we may conclude therefore that the object wanted has been in a great measure attained, and that the population proceeds with rapid strides.

Pallas, however, complains that the intentions of the empress respecting the peopling of Siberia were not always well fulfilled by her subordinate agents, and that the proprietors to whose care this was left, often sent off colonists in every respect unfit for the purpose in regard to age, disease, and want of industrious habits.[6] Even the German settlers in the districts near the Wolga are, according to Pallas, deficient in this last point,[7] and this is certainly a most essential one. It may indeed be safely asserted that the importation of industry is of infinitely more consequence to the population of a country than the importation of men and women considered only with regard to numbers. Were it possible at once to change the habits of a whole people, and to direct its industry at pleasure, no government would ever be reduced to the necessity of encouraging foreign settlers. But to change long-existing habits is of all enterprises the most difficult. Many years must elapse under the most favourable circumstances before the Siberian boor will possess the industry and activity of an English labourer. And though the Russian

[1] Voy. de Pallas, tom. iii. p. 10.
[2] Id. tom. iv. p. 3.
[3] Id. p. 6.
[4] Id. p. 3.
[5] Tooke's View of the Russian Empire, vol. iii. p. 239.
[6] Voy. de Pallas, tom. v. p. 5.
[7] Id. p. 253.

government has been incessant in its endeavours to convert the pastoral tribes of Siberia to agriculture, yet many obstinately persist in bidding defiance to any attempts that can be made to wean them from their injurious sloth.[1]

Many other obstacles concur to prevent that rapid growth of the Russian colonies which the procreative power would permit. Some of the low countries of Siberia are unhealthy from the number of marshes which they contain;[2] and great and wasting epizooties are frequent among the cattle.[3] In the districts near the Wolga, though the soil is naturally rich, yet droughts are so frequent that there is seldom more than one good harvest out of three.[4] The colonists of Saratof, after they had been settled for some years, were obliged to remove on this account to other districts; and the whole expense of building their houses, amounting to above a million of roubles, was remitted to them by the empress.[5] For purposes either of safety or convenience, the houses of each colony are all built contiguous or nearly so, and not scattered about upon the different farms. A want of room is in consequence soon felt in the immediate neighbourhood of the village, while the distant grounds remain in a state of very imperfect cultivation. On observing this in the colony of Kotschesnaia, Pallas proposed that a certain part should be removed by the empress to other districts, that the remainder might be left more at their ease.[6] This proposal seems to prove that spontaneous divisions of this kind did not often take place, and that the children of the colonists might not always find an easy mode of settling themselves, and rearing up fresh families. In the flourishing colony of the Moravian brethren in Sarepta, it is said that the young people cannot marry without the consent of their priests; and that their consent is not in general granted till late.[7]

[1] Tooke's Russian Empire, vol. iii. p. 313.

[2] Voy. de Pallas, tom. iii. p. 16. Though in countries where the procreative power is never fully called into action, unhealthy seasons and epidemics have but little effect on the average population, yet in new colonies, which are differently circumstanced in this respect, they materially impede its progress. This point is not sufficiently understood. If in countries which were either stationary or increasing very slowly, all the immediate checks to population, which had been observed, were to continue in force, no abundance of food could materially increase the number of people. But the precise way in which such an abundance operates is by diminishing the immediate checks which before prevailed. Those, however, which may remain, either from the difficulty of changing habits, or from any unfavourable circumstances in the soil or climate, will still continue to operate in preventing the procreative power from producing its full effect.

[3] Id. p. 17, tom. v. p. 411.

[4] Id. tom. v. p. 252 et seq.

[5] Tooke's Russian Empire, vol. ii. p. 245.

[6] Voy. de Pallas, tom. v. p. 253.

[7] Id. p. 175.

It would appear, therefore, that among the obstacles to the increase of population, even in these new colonies, the preventive check has its share. Population can never increase with great rapidity but when the real price of common labour is very high, as in America; and from the state of society in this part of the Russian territories, and the consequent want of a proper vent for the produce of industry, this effect, which usually accompanies new colonies and is essential to their rapid growth, does not take place in any considerable degree.[1]

[1] Other causes may concur in restraining the population of Siberia which have not been noticed by Pallas. In general, it should be observed, with regard to all the immediate checks to population, which I either have had or shall have occasion to mention, that, as it is evidently impossible to ascertain the extent to which each acts, and the proportion of the whole procreative power which it impedes, no accurate inferences respecting the actual state of population can be drawn from them *à priori*. The prevailing checks in two different nations may appear to be exactly the same as to kind, yet if they are different in degree, the rate of increase in each will, of course, be as different as possible. All that can be done, therefore, is to proceed as in physical inquiries; that is, first to observe the facts, and then account for them from the best lights that can be collected.

CHAPTER X

OF THE CHECKS TO POPULATION IN THE TURKISH DOMINIONS AND PERSIA

In the Asiatic parts of the Turkish dominions it will not be difficult, from the accounts of travellers, to trace the checks to population and the causes of its present decay; and as there is little difference in the manners of the Turks, whether they inhabit Europe or Asia, it will not be worth while to make them the subject of distinct consideration.

The fundamental cause of the low state of population in Turkey, compared with its extent of territory, is undoubtedly the nature of the government. Its tyranny, its feebleness, its bad laws and worse administration of them, together with the consequent insecurity of property, throw such obstacles in the way of agriculture that the means of subsistence are necessarily decreasing yearly, and with them, of course, the number of people. The miri, or general land-tax paid to the sultan, is in itself moderate;[1] but by abuses inherent in the Turkish government, the pachas and their agents have found out the means of rendering it ruinous. Though they cannot absolutely alter the impost which has been established by the sultan, they have introduced a multitude of changes, which, without the name, produce all the effects of an augmentation.[2] In Syria, according to Volney, having the greatest part of the land at their disposal, they clog their concessions with burdensome conditions, and exact the half, and sometimes even two-thirds, of the crop. When the harvest is over, they cavil about losses, and as they have the power in their hands, they carry off what they think proper. If the season fail, they still exact the same sum, and expose everything that the poor peasant possesses to sale. To these constant oppressions are added a thousand accidental extortions. Sometimes a whole village is laid under contribution for some real or imaginary offence. Arbitrary presents are exacted on the accession of each governor; grass, barley, and straw are demanded for his horses; and commissions are multiplied, that the soldiers

[1] Voy. de Volney, tom. ii. c. xxxvii. p. 373. 8vo. 1787.
[2] Id. p. 373.

who carry the orders may live upon the starving peasants, whom they treat with the most brutal insolence and injustice.[1]

The consequence of these depredations is that the poorer class of inhabitants, ruined, and unable any longer to pay the miri, become a burden to the village, or fly into the cities; but the miri is unalterable, and the sum to be levied must be found somewhere. The portion of those who are thus driven from their homes falls on the remaining inhabitants, whose burden, though at first light, now becomes insupportable. If they should be visited by two years of drought and famine the whole village is ruined and abandoned; and the tax which it should have paid is levied on the neighbouring lands.[2]

The same mode of proceeding takes place with regard to the tax on the Christians, which has been raised by these means from three, five, and eleven piastres, at which it was at first fixed, to thirty-five and forty, which absolutely impoverishes those on whom it is levied, and obliges them to leave the country. It has been remarked that these exactions have made a rapid progress during the last forty years; from which time are dated the decline of agriculture, the depopulation of the country, and the diminution in the quantity of specie carried into Constantinople.[3]

The food of the peasants is almost everywhere reduced to a little flat cake of barley or doura, onions, lentils, and water. Not to lose any part of their corn, they leave in it all sorts of wild grain, which often produce bad consequences. In the mountains of Lebanon and Nablous, in time of dearth, they gather the acorns from the oaks, which they eat after boiling or roasting them in ashes.[4]

By a natural consequence of this misery, the art of cultivation is in the most deplorable state. The husbandman is almost without instruments, and those he has are very bad. His plough is frequently no more than the branch of a tree cut below a fork, and used without wheels. The ground is tilled by asses and cows, rarely by oxen, which would bespeak too much riches. In the districts exposed to the Arabs, as in Palestine, the countryman must sow with his musket in his hand; and scarcely does the corn turn yellow before it is reaped, and concealed in subterraneous caverns. As little as possible is employed for seed-corn, because the peasants sow no more than is barely necessary for their subsistence. Their whole industry is limited to a supply of their immediate wants; and to procure a little bread, a few

[1] Voy. de Volney, tom. ii. c. xxxvii. p. 374.
[2] Id. p. 375.
[3] Id. p. 376.
[4] Id. p. 377.

onions, a blue shirt, and a bit of woollen, much labour is not necessary. "The peasant lives therefore in distress; but at least he does not enrich his tyrants, and the avarice of despotism is its own punishment." [1]

This picture, which is drawn by Volney in describing the state of the peasants in Syria, seems to be confirmed by all other travellers in these countries; and, according to Eton, it represents very nearly the condition of the peasants in the greatest part of the Turkish dominions.[2] Universally, the offices of every denomination are set up to public sale; and in the intrigues of the seraglio, by which the disposal of all places is regulated, everything is done by means of bribes. The pachas, in consequence, who are sent into the provinces, exert to the utmost their power of extortion; but are always outdone by the officers immediately below them, who, in their turn, leave room for their subordinate agents.[3]

The pacha must raise money to pay the tribute, and also to indemnify himself for the purchase of his office, support his dignity, and make a provision in case of accidents; and as all power, both military and civil, centres in his person from his representing the sultan, and the means are at his discretion, the quickest are invariably considered as the best.[4] Uncertain of to-morrow, he treats his province as a mere transient possession, and endeavours to reap, if possible, in one day the fruit of many years, without the smallest regard to his successor, or the injury that he may do to the permanent revenue.[5]

The cultivator is necessarily more exposed to these extortions than the inhabitant of the towns. From the nature of his employment, he is fixed to one spot, and the productions of agriculture do not admit of being easily concealed. The tenure of the land and the rights of succession are besides uncertain. When a father dies, the inheritance reverts to the sultan, and the children can only redeem the succession by a considerable sum of money. These considerations naturally occasion an indifference to landed estates. The country is deserted; and each person is desirous of flying to the towns, where he will not only in general meet with better treatment, but may hope to acquire a species of wealth which he can more easily conceal from the eyes of his rapacious masters.[6]

[1] Voy. de Volney, tom. ii. c. xxxvii. p. 379.
[2] Eton's Turkish Emp. c. viii. 2nd edit. 1799.
[3] Id. c. ii. p. 55.
[4] Voy. de Volney, tom. ii. c. xxxiii. p. 347.
[5] Id. p. 350.
[6] Id. tom. ii. c. xxxvi. p. 369.

To complete the ruin of agriculture, a maximum is in many cases established, and the peasants are obliged to furnish the towns with corn at a fixed price. It is a maxim of Turkish policy originating in the feebleness of the government and the fear of popular tumults, to keep the price of corn low in all the considerable towns. In the case of a failure in the harvest, every person who possesses any corn is obliged to sell it at the price fixed, under pain of death; and if there be none in the neighbourhood, other districts are ransacked for it.[1] When Constantinople is in want of provisions, ten provinces are perhaps famished for a supply.[2] At Damascus, during the scarcity in 1784, the people paid only one penny farthing a pound for their bread, while the peasants in the villages were absolutely dying with hunger.[3]

The effect of such a system of government on agriculture need not be insisted upon. The causes of the decreasing means of subsistence are but too obvious; and the checks which keep the population down to the level of these decreasing resources, may be traced with nearly equal certainty, and will appear to include almost every species of vice and misery that is known.

It is observed in general that the Christian families consist of a greater number of children than the Mahometan families in which polygamy prevails.[4] This is an extraordinary fact; because though polygamy, from the unequal distribution of women which it occasions, be naturally unfavourable to the population of a whole country; yet the individuals who are able to support a plurality of wives ought certainly, in the natural course of things, to have a greater number of children than those who are confined to one. The way in which Volney principally accounts for this fact is that, from the practice of polygamy, and very early marriages, the Turks are enervated while young, and impotence at thirty is very common.[5] Eton notices an unnatural vice as prevailing in no inconsiderable degree among the common people, and considers it as one of the checks to the population;[6] but the five principal causes of depopulation which he enumerates are:

1. The plague, from which the empire is never entirely free.
2. Those terrible disorders which almost always follow it, at least in Asia.
3. Epidemic and endemic maladies in Asia, which make as

[1] Voy. de Volney, tom. ii. c. xxxviii. p. 38.
[2] Id. c. xxxiii. p. 345.
[3] Id. c. xxxviii. p. 381.
[4] Eton's Turkish Emp. c. vii. p. 275.
[5] Voy. de Volney, tom. ii. c. xl. p. 445.
[6] Eton's Turkish Emp. c. vii. p. 275.

dreadful ravages as the plague itself, and which frequently visit that part of the empire.

4. Famine.

5. And lastly, the sicknesses which always follow a famine, and which occasion a much greater mortality.[1]

He afterwards gives a more particular account of the devastations of the plague in different parts of the empire, and concludes by observing, that if the number of the Mahometans have decreased, this cause alone is adequate to the effect;[2] and that, things going on in their present train, the Turkish population will be extinct in another century.[3] But this inference, and the calculations which relate to it, are without doubt erroneous. The increase of population in the intervals of these periods of mortality is probably greater than he is aware of. At the same time it must be remarked that in a country where the industry of the husbandman is confined to the supply of his necessary wants, where he sows only to prevent himself from starving, and is unable to accumulate any surplus produce, a great loss of people is not easily recovered; as the natural effects arising from the diminished numbers cannot be felt in the same degree as in countries where industry prevails and property is secure.

According to the Persian legislator Zoroaster, to plant a tree, to cultivate a field, to beget children, are meritorious acts; but it appears from the accounts of travellers, that many among the lower classes of people cannot easily attain the latter species of merit; and in this instance, as in numberless others, the private interest of the individual corrects the errors of the legislator. Sir John Chardin says that matrimony in Persia is very expensive, and that only men of estates will venture upon it, lest it prove their ruin.[4] The Russian travellers seem to confirm this account, and observe that the lower classes of people are obliged to defer marriage till late; and that it is only among the rich that this union takes place early.[5]

The dreadful convulsions to which Persia has been continually subject for many hundred years must have been fatal to her agriculture. The periods of repose from external wars and internal commotions have been short and few; and even during the times of profound peace, the frontier provinces have been constantly subject to the ravages of the Tartars.

[1] Eton's Turkish Emp. c. vii. p. 264.
[2] Id. p. 291.
[3] Id. p. 280.
[4] Sir John Chardin's Travels, Harris's Collect. b. iii. c. ii. p. 870.
[5] Découv. Russ. tom. ii. p. 293.

The effect of this state of things is such as might be expected. The proportion of uncultivated to cultivated land in Persia, Sir John Chardin states to be ten to one;[1] and the mode in which the officers of the Shah and private owners let out their lands to husbandmen is not that which is best calculated to reanimate industry. The grain in Persia is also very subject to be destroyed by hail, drought, locusts, and other insects,[2] which probably tends rather to discourage the employment of capital in the cultivation of the soil.

The plague does not extend to Persia; but the small-pox is mentioned by the Russian travellers as making very fatal ravages.[3]

It will not be worth while to enter more minutely on the checks to population in Persia, as they seem to be nearly similar to those which have been just described in the Turkish dominions. The superior destruction of the plague in Turkey is perhaps nearly balanced by the greater frequency of internal commotions in Persia.

[1] Chardin's Travels, Harris's Collect. b. iii. c. ii. p. 902. [2] Id.
[3] Découv. Russ. tom. ii. p. 377.

CHAPTER XI

OF THE CHECKS TO POPULATION IN INDOSTAN AND THIBET

In the ordinances of Menu, the Indian legislator, which Sir Wm. Jones has translated, and called the *Institutes of Hindu Law*, marriage is very greatly encouraged, and a male heir is considered as an object of the first importance.

"By a son a man obtains victory over all people; by a son's son he enjoys immortality; and afterwards by the son of that grandson he reaches the solar abode."

"Since the son delivers his father from the hell, named Put, he was therefore called puttra, by Brahma himself."[1]

Among the different nuptial rites, Menu has ascribed particular qualities to each.

"A son of a *Bráhmì*, or wife by the first ceremony, redeems from sin, if he perform virtuous acts, ten ancestors, ten descendants and himself, the twenty-first person."

"A son born of a wife by the *Daiva* nuptials redeems seven and seven, in higher and lower degrees; of a wife by the *Arsha*, three and three; of a wife by the *Prájápatya*, six and six."[2]

A housekeeper is considered as of the most eminent order. "The divine sages, the manes, the gods, the spirits, and guests pray for benefits to masters of families."[3] An elder brother not married before the younger is mentioned among the persons who are particularly to be shunned.[4]

Such ordinances would naturally cause marriage to be considered a religious duty; yet it seems to be rather a succession of male heirs, than a very numerous progeny, that is the object so much desired.

"The father having begotten a son, discharges his debt to his own progenitors."

"That son alone, by whose birth he discharges the debt, and through whom he attains immortality, was begotten from a sense

[1] Sir William Jones's Works, vol. iii. c. ix. p. 354. Speaking of the Indian laws, the Abbé Raynal says, "La population est un devoir primitif, un ordre de la nature si sacré, que la loi permet de tromper, de mentir, de se parjurer pour favoriser un mariage." Hist. des Indes, tom. i. l. i. p. 81. 8vo. 10 vols. Paris, 1795.

[2] Sir Wm. Jones's Works, vol. iii. c. iii. p. 124.

[3] Id. p. 130.

[4] Id. p. 141.

of duty; all the rest are considered by the wise as begotten from love of pleasure." [1]

A widow is on some occasions allowed to have one son by the brother, or some appointed kinsman of the deceased husband, but on no account a second. "The first object of the appointment being obtained according to law, both the brother and sister must live together like a father and daughter by affinity." [2]

In almost every part of the ordinances of Menu, sensuality of all kinds is strongly reprobated, and chastity inculcated as a religious duty.

"A man by the attachment of his organs to sensual pleasures incurs certain guilt; but having wholly subdued them, he hence attains heavenly bliss."

"Whatever man may obtain all those gratifications, or whatever man may resign them completely, the resignation of all pleasures is far better than the attainment of them." [3]

It is reasonable to suppose that such passages might, in some degree, tend to counteract those encouragements to increase which have been before mentioned; and might prompt some religious persons to desist from further indulgences when they had obtained one son, or to remain more contented than they otherwise would have been in an unmarried state. Strict and absolute chastity seems indeed to supersede the obligation of having descendants.

"Many thousands of Brahmins having avoided sensuality from their early youth, and having left no issue in their families, have ascended nevertheless to Heaven."

"And like those abstemious men, a virtuous wife ascends to Heaven though she have no child, if after the decease of her lord she devote herself to pious austerity." [4]

The permission to a brother or other kinsman to raise up an heir for the deceased husband, which has been noticed, extends only to women of the servile class.[5] Those of the higher classes are not even to pronounce the name of another man, but "to continue till death forgiving all injuries, performing harsh duties, avoiding every sensual pleasure, and cheerfully practising the incomparable rules of virtue." [6]

Besides these strict precepts relating to the government of the passions, other circumstances would perhaps concur to

[1] Sir William Jones's Works, vol. iii. c. ix. p. 340. [2] Id. vol. iii. c. ii. p. 96. [3] Id. p. 343. [4] Id. c. v. p. 221. [5] Id. c. ix. p. 343. [6] Id. c. v. p. 221.

prevent the full effect of the ordinances which encourage marriage.

The division of the people into classes, and the continuance of the same profession in the same family, would be the means of pointing out to each individual, in a clear and distinct manner, his future prospects respecting a livelihood; and from the gains of his father he would be easily enabled to judge whether he could support a family by the same employment. And though, when a man cannot gain a subsistence in the employments appropriate to his class, it is allowable for him, under certain restrictions, to seek it in another, yet some kind of disgrace seems to attach to this expedient; and it is not probable that many persons would marry with the certain prospect of being obliged thus to fall from their class, and to lower in so marked a manner their condition in life.

In addition to this, the choice of a wife seems to be a point of considerable difficulty. A man might remain unmarried for some time before he could find exactly such a companion as the legislator prescribes. Ten families of a certain description, be they ever so great or ever so rich in kine, goats, sheep, gold, and grain, are studiously to be avoided. Girls with too little or too much hair, who are too talkative, who have bad eyes, a disagreeable name or any kind of sickness, who have no brother, or whose father is not well known, are all, with many others, excluded; and the choice will appear to be in some degree confined when it must necessarily rest upon a girl "whose form has no defect; who has an agreeable name; who walks gracefully, like a phenicopteros or a young elephant; whose hair and teeth are moderate respectively in quantity and size; whose body has exquisite softness." [1]

It is observed that a woman of the servile class is not mentioned, even in the recital of any ancient story, as the wife of a Brahmin or of a Cshatriya, though in the greatest difficulty to find a suitable match; which seems to imply that such a difficulty might sometimes occur.[2]

Another obstacle to marriage arising from Hindoo customs is that an elder brother who does not marry seems in a manner to confine all his other brothers to the same state; for a younger brother who marries before the elder, incurs disgrace, and is mentioned among the persons who ought to be shunned.[3]

The character which the legislator draws of the manners and

[1] Sir William Jones's Works, vol. iii. c. iii. p. 120.
[2] Id. p. 121.
[3] Id. p. 141.

dispositions of the women in India, is extremely unfavourable. Among many other passages expressed with equal severity, he observes that, "through their passion for men, their mutable temper, their want of settled affection, and their perverse nature, let them be guarded in this world ever so well, they soon become alienated from their husbands."[1]

This character, if true, probably proceeded from their never being allowed the smallest degree of liberty,[2] and from the state of degradation to which they were reduced by the practice of polygamy; but however this may be, such passages tend strongly to show that illicit intercourse between the sexes was frequent, notwithstanding the laws against adultery. These laws are noticed as not relating to the wives of public dancers or singers, or of such base men as lived by the intrigues of their wives;[3] a proof that these characters were not uncommon, and were to a certain degree permitted. Add to this, that the practice of polygamy[4] among the rich would sometimes render it difficult for the lower classes of people to obtain wives, and this difficulty would probably fall particularly hard on those who were reduced to the condition of slaves.

From all these circumstances combined, it seems probable that among the checks to population in India the preventive check would have its share; but from the prevailing habits and opinions of the people there is reason to believe that the tendency to early marriages was still always predominant, and in general prompted every person to enter into this state who could look forward to the slightest chance of being able to maintain a family. The natural consequence of this was, that the lower classes of people were reduced to extreme poverty, and were compelled to adopt the most frugal and scanty mode of subsistence. This frugality was still further increased, and extended in some degree to the higher classes of society, by its being considered as an eminent virtue.[5] The population would thus be pressed hard against the limits of the means of subsistence, and the food of the country would be meted out to the major part of the people in the smallest shares that could support life. In such a state of things every failure in the crops from unfavourable seasons would be felt most severely; and India, as might be expected, has in all ages been subject to the most dreadful famines.

A part of the ordinances of Menu is expressly dedicated to

[1] Sir William Jones's Works, vol. iii. c. ix. p. 337.
[2] Id. c. v. p. 219.
[3] Id. c. viii. p. 325.
[4] Id. c. ix. p. 346, 347.
[5] Id. c. iii. p. 133.

the consideration of times of distress, and instructions are given to the different classes respecting their conduct during these periods. Brahmins pining with hunger and want are frequently mentioned[1] and certain ancient and virtuous characters are described, who had done impure and unlawful acts, but who were considered by the legislator as justified on account of the extremities to which they were reduced.

"Ajígarta, dying with hunger, was going to destroy his own son by selling him for some cattle; yet he was guilty of no crime, for he only sought a remedy against famishing."

"Vámadéva, who well knew right and wrong, was by no means rendered impure, though desirous, when oppressed by hunger, of eating the flesh of dogs."

"Viswámitra too, than whom none knew better the distinctions between virtue and vice, resolved, when he was perishing with hunger, to eat the haunch of a dog, which he had received from a *Chaudála*."[2]

If these great and virtuous men of the highest class, whom all persons were under the obligation of assisting, could be reduced to such extremities, we may easily conjecture what must have been the sufferings of the lowest class.

Such passages clearly prove the existence of seasons of the most severe distress, at the early period when these ordinances were composed; and we have reason to think that they have occurred at irregular intervals ever since. One of the Jesuits says that it is impossible for him to describe the misery to which he was witness during the two-years' famine in 1737 and 1738;[3] but the description which he gives of it, and of the mortality which it occasioned, is sufficiently dreadful without further detail. Another Jesuit, speaking more generally, says, "Every year we baptise a thousand children, whom their parents can no longer feed, or who, being likely to die, are sold to us by their mothers, in order to get rid of them."[4]

The positive checks to population would of course fall principally upon the Sudrá class, and those still more miserable beings who are the outcasts of all the classes and are not even suffered to live within the towns.[5]

On this part of the population the epidemics, which are the consequences of indigence and bad nourishment, and the mortality among young children, would necessarily make great ravages:

[1] Sir William Jones's Works, vol. iii. c. iv. p. 165; c. x. p. 397.
[2] Id. c. x. p. 397, 398.
[3] Lettres Edif. tom. xiv. p. 178.
[4] Id. p. 284.
[5] Sir William Jones's Works, vol. iii. c. x. p. 390.

and thousands of these unhappy wretches would probably be swept off in a period of scarcity before any considerable degree of want had reached the middle classes of the society. The Abbé Raynal says (on what authority I know not) that, when the crops of rice fail, the huts of these poor outcasts are set on fire, and the flying inhabitants shot by the proprietors of the grounds, that they may not consume any part of the produce.[1]

The difficulty of rearing a family even among the middle and higher classes of society, or the fear of sinking from their caste, has driven the people in some parts of India to adopt the most cruel expedients to prevent a numerous offspring. In a tribe on the frontiers of Junapore, a district of the province of Benares, the practice of destroying female infants has been fully substantiated. The mothers were compelled to starve them. The reason that the people gave for this cruel practice was the great expense of procuring suitable matches for their daughters. One village only furnished an exception to this rule, and in that village several old maids were living.

It will naturally occur that the race could not be continued upon this principle: but it appeared that the particular exceptions to the general rule and the intermarriages with other tribes were sufficient for this purpose. The East India Company obliged these people to enter into an engagement not to continue this inhuman practice.[2]

On the coast of Malabar the Nayrs do not enter into regular marriages, and the right of inheritance and succession rests in the mother of the brother, or otherwise goes to the sister's son, the father of the child being always considered as uncertain.

Among the Brahmins, when there are more brothers than one, only the elder or eldest of them marries. The brothers, who thus maintain celibacy, cohabit with Nayr women without marriage in the way of the Nayrs. If the eldest brother has not a son, then the next brother marries.

Among the Nayrs, it is the custom for one Nayr woman to have attached to her two males, or four, or perhaps more.

The lower castes, such as carpenters, ironsmiths, and others, have fallen into the imitation of their superiors, with this difference, that the joint concern in one woman is confined to brothers and male relations by blood, to the end that no alienation may take place in the course of the succession.[3]

[1] Hist. des Indes, tom. i. liv. i. p. 97. 8vo. 10 vols. Paris, 1795.
[2] Asiatic Researches, vol. iv. p. 354.
[3] Id. vol. v. p. 14.

Montesquieu takes notice of this custom of the Nayrs on the coast of Malabar, and accounts for it on the supposition that it was adopted in order to weaken the family ties of this caste, that as soldiers they might be more at liberty to follow the calls of their profession: but I should think that it originated more probably in a fear of the poverty arising from a large family, particularly as the custom seems to have been adopted by the other classes.[1]

In Tibet, according to Turner's account of that country, a custom of this kind prevails generally. Without pretending absolutely to determine the question of its origin, Mr. Turner leans to the supposition that it arose from the fear of a population too great for an unfertile country. From travelling much in the East he had probably been led to observe the effects necessarily resulting from an overflowing population, and is in consequence one among the very few writers who see these effects in their true light. He expresses himself very strongly on this subject, and, in reference to the above custom, says, "It certainly appears that a superabundant population in an unfertile country must be the greatest of all calamities, and produce eternal warfare or eternal want. Either the most active and the most able part of the community must be compelled to emigrate, and to become soldiers of fortune or merchants of chance; or else, if they remain at home, be liable to fall a prey to famine in consequence of some accidental failure in their scanty crops. By thus linking whole families together in the matrimonial yoke, the too rapid increase of population was perhaps checked, and an alarm prevented, capable of pervading the most fertile region upon the earth, and of giving birth to the most inhuman and unnatural practice in the richest, the most productive, and the most populous country in the world. I allude to the Empire of China, where a mother, not foreseeing the means of raising or providing for a numerous family, exposes her new-born infant to perish in the fields; a crime, however odious, by no means I am assured unfrequent." [2]

In almost every country of the globe individuals are compelled by considerations of private interest to habits which tend to repress the natural increase of population; but Tibet is perhaps the only country where these habits are universally encouraged by the government, and where to repress rather than to encourage population seems to be a public object.

[1] Esprit des Loix, liv. xvi. c. 5.
[2] Turner's Embassy to Tibet, part ii. c. x. p. 351.

In the first career of life the Bootea is recommended to distinction by a continuance in a state of celibacy; as any matrimonial contract proves almost a certain hinderance to his rise in rank, or his advancement to offices of political importance. Population is thus opposed by the two powerful bars of ambition and religion; and the higher orders of men, entirely engrossed by political or ecclesiastical duties, leave to the husbandman and labourer, to those who till the fields and live by their industry, the exclusive charge of propagating the species.[1]

Hence religious retirement is frequent,[2] and the number of monasteries and nunneries is considerable. The strictest laws exist to prevent a woman from accidentally passing a night within the limits of the one, or a man within those of the other; and a regulation is framed completely to obviate abuse, and establish respect towards the sacred orders of both sexes.

The nation is divided into two distinct and separate classes, those who carry on the business of the world and those who hold intercourse with heaven. No interference of the laity ever interrupts the regulated duties of the clergy. The latter, by mutual compact, take charge of all spiritual concerns; and the former by their labours enrich and populate the state.[3]

But even among the laity the business of population goes on very coldly. All the brothers of a family, without any restriction of age or of numbers, associate their fortunes with one female, who is chosen by the eldest, and considered as the mistress of the house; and whatever may be the profits of their several pursuits, the result flows into the common store.[4]

The number of husbands is not apparently defined, or restricted within any limits. It sometimes happens that in a small family there is but one male; and the number, Mr. Turner says, may seldom exceed that which a native of rank at Teshoo Loomboo pointed out to him in a family resident in the neighbourhood, in which five brothers were then living together very happily with one female under the same connubial compact. Nor is this sort of league confined to the lower ranks of people alone; it is found also frequently in the most opulent families.[5]

It is evident that this custom, combined with the celibacy of such a numerous body of ecclesiastics, must operate in he most powerful manner as a preventive check to population. Yet, notwithstanding this excessive check, it would appear, from Mr. Turner's account of the natural sterility of the soil, that the

[1] Turner's Embassy, part ii. c. i. p. 172. [2] Id.
[3] Id. c viii. p. 312. [4] Id. c. x. p. 348, 350. [5] Id. c. x. p. 349.

population is kept up to the level of the means of subsistence; and this seems to be confirmed by the number of beggars in Teshoo Loomboo. On these beggars, and the charity which feeds them, Mr. Turner's remark, though common, is yet so just and important that it cannot be too often repeated.

"Thus I unexpectedly discovered," he says, "where I had constantly seen the round of life moving in a tranquil regular routine, a mass of indigence and idleness of which I had no idea. But yet it by no means surprised me, when I considered that, wherever indiscriminate charity exists, it will never want objects on which to exercise its bounty, but will always attract expectants more numerous than it has the means to gratify. No human being can suffer want at Teshoo Loomboo. It is on this humane disposition that a multitude even of Mussulmans, of a frame probably the largest and most robust in the world, place their reliance for the mere maintenance of a feeble life; and besides these, I am informed, that no less than three hundred Hindoos, Goseins, and Sunniasses are daily fed at this place by the Lama's bounty."[1]

[1] Turner's Embassy, part ii. c. ix. p. 330.

CHAPTER XII

OF THE CHECKS TO POPULATION IN CHINA AND JAPAN

THE account which has lately been given of the population of China is so extraordinary as to startle the faith of many readers, and tempt them to suppose, either that some accidental error must have crept into the calculations from an ignorance of the language, or that the mandarin who gave Sir George Staunton the information must have been prompted by a national pride (which is common everywhere, but particularly remarkable in China) to exaggerate the power and resources of his country. It must be allowed that neither of these circumstances is very improbable; at the same time it will be found that the statement of Sir George Staunton does not very essentially differ from other accounts of good authority: and, so far from involving any contradiction, is rendered probable by a reference to those descriptions of the fertility of China in which all the writers who have visited the country agree.

According to Duhalde, in the poll made at the beginning of the reign of Kang-hi, there were found 11,052,872 families, and 59,788,364 men able to bear arms; and yet neither the princes, nor the officers of the court, nor the mandarins, nor the soldiers who had served and been discharged; nor the literati, the licentiates, the doctors, the bonzas, nor young persons under twenty years of age, nor the great multitudes living either on the sea or on rivers in barks, are comprehended in this number.[1]

The proportion which the number of men of a military age bears to the whole population of any country is generally estimated as 1 to 4. If we multiply 59,788,364 by 4, the result will be 239,153,456; but in the general calculations on this subject, a youth is considered as capable of bearing arms before he is twenty. We ought therefore to have multiplied by a higher number. The exceptions to the poll seem to include almost all the superior classes of society, and a very great number among the lower. When all these circumstances are taken into consideration, the whole population, according to Duhalde, will not

[1] Duhalde's Hist. of China, 2 vols. folio, 1738, vol. i. p. 244.

appear to fall very short of the 333,000,000 mentioned by Sir George Staunton.[1]

The small number of families in proportion to the number of persons able to bear arms, which is a striking part of this statement of Duhalde, is accounted for by a custom noticed by Sir George Staunton as general in China. In the enclosure belonging to one dwelling, he observes that a whole family of three generations, with all their respective wives and children, will frequently be found. One small room is made to serve for the individuals of each family, sleeping in different beds, divided only by mats hanging from the ceiling. One common room is used for eating.[2] In China there is besides a prodigious number of slaves,[3] who will of course be reckoned as part of the families to which they belong. These two circumstances may perhaps be sufficient to account for what at first appears to be a contradiction in the statement.

To account for this population, it will not be necessary to recur to the supposition of Montesquieu, that the climate of China is in any peculiar manner favourable to the production of children, and that the women are more prolific than in any other part of the world.[4] The causes which have principally contributed to produce this effect appear to be the following:

First, the excellence of the natural soil, and its advantageous position in the warmest parts of the temperate zone, a situation the most favourable to the productions of the earth. Duhalde has a long chapter on the plenty which reigns in China, in which he observes that almost all that other kingdoms afford may be found in China; and that China produces an infinite number of things which are to be found nowhere else. This plenty, he says, may be attributed as well to the depth of the soil as to the painful industry of its inhabitants, and the great number of lakes, rivers, brooks, and canals wherewith the country is watered.[5]

Secondly, the very great encouragement that from the beginning of the monarchy has been given to agriculture, which has directed the labours of the people to the production of the greatest possible quantity of human subsistence. Duhalde says, that what makes these people undergo such incredible fatigues in cultivating the earth is not barely their private interest, but rather the veneration paid to agriculture, and the esteem which the emperors themselves have always had for it, from the com-

[1] Embassy to China, vol. ii. Appen. p. 615. 4to.
[2] Id. Appen. p. 155.
[3] Duhalde's China, vol. i. p. 278.
[4] Esprit des Loix, liv. viii. c. xxi.
[5] Duhalde's China, vol. i. p. 314.

mencement of the monarchy. One emperor of the highest reputation was taken from the plough to sit on the throne. Another found out the art of draining water from several low countries, which were till then covered with it, of conveying it in canals to the sea, and of using these canals to render the soil fruitful.[1] He besides wrote several books on the manner of cultivating land, by dunging, tilling, and watering it. Many other emperors expressed their zeal for this art and made laws to promote it; but none raised its esteem to a higher pitch than Ven-ti, who reigned 179 years before Christ. This prince, perceiving that his country was ruined by wars, resolved to engage his subjects to cultivate their lands, by the example of ploughing with his own hands the land belonging to his palace, which obliged all the ministers and great men of his court to do the same.[2]

A great festival, of which this is thought to be the origin, is solemnised every year in all the cities of China on the day that the sun enters the fifteenth degree of Aquarius, which the Chinese consider as the beginning of their spring. The emperor goes himself in a solemn manner to plough a few ridges of land, in order to animate the husbandman by his own example; and the mandarins of every city perform the same ceremony.[3] Princes of the blood and other illustrious persons hold the plough after the emperor, and the ceremony is preceded by the spring sacrifice, which the emperor as chief pontiff offers to Shangti to procure plenty in favour of his people.

The reigning emperor in the time of Duhalde celebrated this festival with extraordinary solemnity, and in other respects showed an uncommon regard for husbandmen. To encourage them in their labours, he ordered the governors of all the cities to send him notice every year of the person in this profession, in their respective districts, who was most remarkable for his application to agriculture, for unblemished reputation, for preserving union in his own family, and peace with his neighbours, and for his frugality, and aversion to all extravagance.[4] The mandarins in their different provinces encourage with honours the vigilant cultivator, and stigmatise with disgrace the man whose lands are neglected.[5]

In a country in which the whole of the government is of the patriarchal kind, and the emperor is venerated as the father of

[1] Duhalde's China, vol. i. p. 274.
[2] Id. p. 275.
[3] Id. p. 275.
[4] Id. p. 276.
[5] Lettres Edif. tom. xix. p. 132.

his people and the fountain of instruction, it is natural to suppose that these high honours paid to agriculture would have a powerful effect. In the gradations of rank, they have raised the husbandman above the merchant or mechanic;[1] and the great object of ambition among the lower classes is to become possessed of a small portion of land. The number of manufacturers bears but a very inconsiderable proportion to that of husbandmen in China;[2] and the whole surface of the empire is, with trifling exceptions, dedicated to the production of food for man alone. There is no meadow, and very little pasture; neither are the fields cultivated in oats, beans, or turnips for the support of cattle of any kind. Little land is taken up for roads, which are few and narrow, the chief communication being by water. There are no commons or lands suffered to lie waste by the neglect or the caprice or for the sport of great proprietors. No arable land lies fallow. The soil, under a hot and fertilising sun, yields annually in most instances double crops; in consequence of adapting the culture to the soil, and of supplying its defects by mixture with other earths, by manure, by irrigation, and by careful and judicious industry of every kind. The labour of man is little diverted from that industry to minister to the luxuries of the opulent and powerful, or in employments of no real use. Even the soldiers of the Chinese army, except during the short intervals of the guards which they are called upon to mount, or the exercises or other occasional services which they perform, are mostly employed in agriculture. The quantity of subsistence is increased also by converting more species of animals and vegetables to that purpose than is usual in other countries.[3]

This account, which is given by Sir George Staunton, is confirmed by Duhalde and the other Jesuits; who agree in describing the persevering industry of the Chinese, in manuring, cultivating, and watering their lands, and their success in producing a prodigious quantity of human subsistence.[4] The effect of such a system of agriculture on population must be obvious.

Lastly, the extraordinary encouragements that have been given to marriage which have caused the immense produce of the country to be divided into very small shares, and have consequently rendered China more populous, in proportion to its

[1] Duhalde's China, vol. i. p. 272.
[2] Embassy to China, Staunton, vol. ii. p. 544.
[3] Id. p. 545.
[4] Duhalde, chapter on Agriculture, vol. i. p. 272; chapter on Plenty, p. 314.

means of subsistence, than perhaps any other country in the world.

The Chinese acknowledge two ends in marriage;[1] the first is that of perpetuating the sacrifices in the temple of their fathers; and the second the multiplication of the species. Duhalde says that the veneration and submission of children to parents, which is the grand principle of their political government, continues even after death, and that the same duties are paid to them as if they were living. In consequence of these maxims, a father feels some sort of dishonour, and is not easy in his mind, if he do not marry off all his children; and an elder brother, though he inherit nothing from his father, must bring up the younger children and marry them, lest the family should become extinct, and the ancestors be deprived of the honours and duties they are entitled to from their descendants.[2]

Sir George Staunton observes that whatever is strongly recommended, and generally practised, is at length considered as a kind of religious duty; and that the marriage union as such takes place in China wherever there is the least prospect of subsistence for a future family. This prospect, however, is not always realised, and the children are then abandoned by the wretched authors of their being;[3] but even this permission given to parents thus to expose their offspring tends undoubtedly to facilitate marriage and encourage population. Contemplating this extreme resource beforehand, less fear is entertained of entering into the married state; and the parental feelings will always step forwards to prevent the recurrence to it, except under the most dire necessity. Marriage with the poor is besides a measure of prudence, because the children, particularly the sons, are bound to maintain their parents.[4]

The effect of these encouragements to marriage among the rich is to subdivide property, which has in itself a strong tendency to promote population. In China there is less inequality in the fortunes than in the conditions of men. Property in land has been divided into very moderate parcels, by the successive distribution of the possessions of every father equally among his sons. It rarely happens that there is but one son to enjoy the whole property of his deceased parents; and from the general prevalence of early marriages, this property is not often increased by collateral succession.[5] These causes constantly

[1] Lettres Edif. et Curieuses, tom. xxiii. p. 448.
[2] Duhalde's China, vol. i. p. 303.
[3] Embassy to China, vol. ii. p. 157.
[4] Id. p. 157.
[5] Id. p. 151.

tend to level wealth; and few succeed to such an accumulation of it as to render them independent of any efforts of their own for its increase. It is a common remark among the Chinese that fortunes seldom continue considerable in the same family beyond the third generation.[1]

The effect of the encouragements to marriage on the poor is to keep the reward of labour as low as possible, and consequently to press them down to the most abject state of poverty. Sir George Staunton observes that the price of labour is generally found to bear as small a proportion everywhere to the rate demanded for provisions as the common people can suffer; and that, notwithstanding the advantage of living together in large families, like soldiers in a mess, and the exercise of the greatest economy in the management of these messes, they are reduced to the use of vegetable food, with a very rare and scanty relish of any animal substance.[2]

Duhalde, after describing the painful industry of the Chinese, and the shifts and contrivances unknown in other countries, to which they have recourse in order to gain a subsistence, says, "Yet it must be owned that, notwithstanding the great sobriety and industry of the inhabitants of China, the prodigious number of them occasions a great deal of misery. There are some so poor that, being unable to supply their children with common necessaries, they expose them in the streets." . . . "In the great cities, such as Pekin and Canton, this shocking sight is very common."[3]

The Jesuit Premare, writing to a friend of the same society, says, "I will tell you a fact, which may appear to be a paradox,[4] but is nevertheless strictly true. It is, that the richest and most flourishing empire of the world is notwithstanding, in one sense, the poorest and the most miserable of all. The country, however extensive and fertile it may be, is not sufficient to support its inhabitants. Four times as much territory would be necessary to place them at their ease. In Canton alone, there is, without exaggeration, more than a million of souls, and in a town three or four leagues distant a still greater number. Who then can count the inhabitants of this province? But what is this to the whole empire, which contains fifteen great provinces, all equally peopled? To how many millions would such a calculation amount? A third part of this infinite population would hardly find sufficient rice to support itself properly.

[1] Embassy to China, vol. ii. p. 152.
[2] Id. p. 156.
[3] Duhalde's China, vol. i. p. 277.
[4] Lettres Edif. et Curieuses, tom. xvi. p. 394.

"It is well known that extreme misery impels people to the most dreadful excesses. A spectator in China, who examines things closely, will not be surprised that mothers destroy or expose many of their children; that parents sell their daughters for a trifle; that the people should be interested; and that there should be such a number of robbers. The surprise is that nothing still more dreadful should happen; and that in the times of famine, which are here but too frequent, millions of people should perish with hunger without having recourse to those dreadful extremities of which we read examples in the histories of Europe.

"It cannot be said in China, as in Europe, that the poor are idle, and might gain a subsistence if they would work. The labours and efforts of these poor people are beyond conception. A Chinese will pass whole days in digging the earth, sometimes up to his knees in water, and in the evening is happy to eat a little spoonful of rice, and to drink the insipid water in which it was boiled. This is all that they have in general." [1]

A great part of this account is repeated in Duhalde; and, even allowing for some exaggeration, it shows in a strong point of view to what degree population has been forced in China, and the wretchedness which has been the consequence of it. The population which has arisen naturally from the fertility of the soil, and the encouragements to agriculture, may be considered as genuine and desirable; but all that has been added by the encouragements to marriage has not only been an addition of so much pure misery in itself, but has completely interrupted the happiness which the rest might have enjoyed.

The territory of China is estimated at about eight times the territory of France.[2] Taking the population of France only at 26 millions, eight times that number will give 208,000,000; and when the three powerful causes of population, which have been stated, are considered, it will not appear incredible that the population of China should be to the population of France, according to their respective superficies, as 333 to 208, or a little more than 3 to 2.

The natural tendency to increase is everywhere so great that it will generally be easy to account for the height at which the population is found in any country. The more difficult as well as the more interesting part of the inquiry is, to trace the immediate causes which stop its further progress. The procreative

[1] Lettres Edif. et Curieuses, tom. xvi. p. 394 et seq.
[2] Embassy to China, Staunton, vol. ii. p. 546.

power would, with as much facility, double in twenty-five years the population of China as that of any of the states of America; but we know that it cannot do this, from the palpable inability of the soil to support such an additional number. What then becomes of this mighty power in China? And what are the kinds of restraint, and the forms of premature death, which keep the population down to the level of the means of subsistence?

Notwithstanding the extraordinary encouragements to marriage in China, we should perhaps be led into an error if we were to suppose that the preventive check to population does not operate. Duhalde says that the number of bonzas is considerably above a million, of which there are two thousand unmarried at Pekin, besides three hundred and fifty thousand more in their temples established in different places by the emperor's patents, and that the literary bachelors alone are about ninety thousand.[1]

The poor, though they would probably always marry when the slightest prospect opened to them of being able to support a family, and, from the permission of infanticide, would run great risks in this respect, yet they would undoubtedly be deterred from entering into this state, under the certainty of being obliged to expose all their children, or to sell themselves and families as slaves; and from the extreme poverty of the lower classes of people, such a certainty would often present itself. But it is among the slaves themselves, of which, according to Duhalde, the misery in China produces a prodigious multitude, that the preventive check to population principally operates. A man sometimes sells his son, and even himself and wife, at a very moderate price. The common mode is to mortgage themselves with a condition of redemption, and a great number of men and maidservants are thus bound in a family.[2] Hume, in speaking of the practice of slavery among the ancients, remarks very justly that it will generally be cheaper to buy a full-grown slave than to rear up one from a child. This observation appears to be particularly applicable to the Chinese. All writers agree in mentioning the frequency of the dearths in China; and, during these periods, it is probable that slaves would be sold in great numbers for little more than a bare maintenance. It could very

[1] Duhalde's China, vol. i. p. 244.

[2] Id. p. 278. La misère et le grand nombre d'habitants de l'empire y causent cette multitude prodigieuse d'esclaves: presque tous les valets, et généralement toutes les filles de service d'une maison sont esclaves. Lettres Edif. tom. xix. p. 145.

rarely therefore answer to the master of a family to encourage his slaves to breed; and we may suppose, in consequence, that a great part of the servants in China, as in Europe, remain unmarried.

The check to population, arising from a vicious intercourse with the sex, does not appear to be very considerable in China. The women are said to be modest and reserved, and adultery is rare. Concubinage is however generally practised, and in the large towns public women are registered; but their number is not great, being proportioned, according to Sir George Staunton, to the small number of unmarried persons, and of husbands absent from their families.[1]

The positive checks to population from disease, though considerable, do not appear to be so great as might be expected. The climate is in general extremely healthy. One of the missionaries goes so far as to say that plagues or epidemic disorders are not seen once in a century;[2] but this is undoubtedly an error, as they are mentioned by others as if they were by no means so unfrequent. In some instructions to mandarins, relating to the burying of the poor, who have in general no regular places of sepulture, it is observed that when epidemic diseases prevail the roads are found covered with bodies sufficient to infect the air to a great distance;[3] and the expression of years of contagion[4] occurs soon after, in a manner which seems to imply that they are not uncommon. On the first and fifteenth day of every month the mandarins assemble, and give their people a long discourse, wherein every governor acts the part of a father who instructs his family.[5] In one of these discourses, which Duhalde produces, the following passage occurs: "Beware of those years which happen from time to time, when epidemic distempers, joined to a scarcity of corn, make all places desolate. Your duty is then to have compassion on your fellow-citizens, and assist them with whatever you can spare."[6]

It is probable that the epidemics, as is usually the case, fall severely on the children. One of the Jesuits, speaking of the number of infants whom the poverty of their parents condemns to death the moment that they are born, writes thus: "There is seldom a year in which the churches at Pekin do not reckon five or six thousand of these children purified by the waters

[1] Embassy to China, vol. ii. p. 157.
[2] Lettres Edif. tom. xxii. p. 187.
[3] Id. tom. xix. p. 126.
[4] Id. p. 127.
[5] Duhalde's China, vol. i. p. 254.
[6] Id. 256.

of baptism. This harvest is more or less abundant according to the number of catechists which we can maintain. If we had a sufficient number, their cares need not be confined alone to the dying infants that are exposed. There would be other occasions for them to exercise their zeal, particularly at certain times of the year, when the small-pox or epidemic disorders carry off an incredible number of children." [1] It is indeed almost impossible to suppose that the extreme indigence of the lower classes of people should not produce diseases likely to be fatal to a considerable part of those children whom their parents might attempt to rear in spite of every difficulty.

Respecting the number of infants which are actually exposed, it is difficult to form the slightest guess; but, if we believe the Chinese writers themselves, the practice must be very common. Attempts have been made at different times by the government to put a stop to it, but always without success. In a book of instructions before alluded to, written by a mandarin celebrated for his humanity and wisdom, a proposal is made for the establishment of a foundling hospital in his district, and an account is given of some ancient establishments of the same kind,[2] which appear to have fallen into disuse. In this book the frequency of the exposure of children and the dreadful poverty which prompts it, are particularly described. "We see," he says, "people so poor that they cannot furnish the nourishment necessary for their own children. It is on this account that they expose so great a number. In the metropolis, in the capitals of the provinces, and in the places of the greatest commerce, their number is the most considerable; but many are found in parts that are less frequented, and even in the country. As the houses in towns are more crowded together, the practice is more obvious; but everywhere these poor unfortunate infants have need of assistance." [3]

In the same work, part of an edict to prevent the drowning of children runs thus: "When the tender offspring just produced is thrown without pity into the waves, can it be said that the mother has given or that the child has received life, when it is lost as soon as it is begun to be enjoyed? The poverty of the parents is the cause of this crime. They have hardly enough to support themselves, much less are they able to pay a nurse and provide for the expenses necessary for the support of their children. This drives them to despair; and not being able to bring themselves to suffer two people to die that one may live,

[1] Lettres Edit. tom. xix. p. 100. [2] Ibid. p. 110. [3] Id. p. 111.

the mother, to preserve the life of her husband, consents to sacrifice her child. It costs much, however, to the parental feelings, but the resolution is ultimately taken, and they think that they are justified in disposing of the life of their child to prolong their own. If they exposed their children in a secret place, the babe might work upon their compassion with its cries. What do they do then? They throw it into the current of the river, that they may lose sight of it immediately, and take from it at once all chance of life." [1]

Such writings appear to be most authentic documents respecting the general prevalence of infanticide.

Sir George Staunton has stated, from the best information which he could collect, that the number of children annually exposed at Pekin is about two thousand; [2] but it is highly probable that the number varies extremely from year to year, and depends very much upon seasons of plenty or seasons of scarcity. After any great epidemic or destructive famine, the number is probably very small; it is natural that it should increase gradually on the return to a crowded population; and it is without doubt the greatest when an unfavourable season takes place, at a period in which the average produce is already insufficient to support the overflowing multitude.

These unfavourable seasons do not appear to be unfrequent, and the famines which follow them are perhaps the most powerful of all the positive checks to the Chinese population; though at some periods the checks from wars and internal commotions have not been inconsiderable.[3] In the annals of the Chinese monarchs, famines are often mentioned; [4] and it is not probable that they would find a place among the most important events and revolutions of the empire if they were not desolating and destructive to a great degree.

One of the Jesuits remarks that the occasions when the mandarins pretend to show the greatest compassion for the people are when they are apprehensive of a failure in the crops, either from drought, from excessive rains, or from some other accident, such as a multitude of locusts, which sometimes overwhelms certain provinces.[5] The causes here enumerated are probably those which principally contribute to the failure of the harvests in China; and the manner in which they are mentioned seems to show that they are not uncommon.

[1] Lettres Edif. tom. xix. p. 124.
[2] Embassy to China, vol. ii. p. 159.
[3] Annals of the Chinese Monarchs. Duhalde's China, vol. i. p. 136.
[4] Id.
[5] Lettres Edif. tom. xix. p. 154.

Meares speaks of violent hurricanes, by which whole harvests are dissipated and a famine follows. From a similar cause, he says, accompanied by excessive drought, a most dreadful dearth prevailed in 1787 throughout all the southern provinces of China, by which an incredible number of people perished. It was no uncommon thing at Canton to see the famished wretch breathing his last, while mothers thought it a duty to destroy their infant children, and the young to give the stroke of fate to the aged, to save them from the agonies of such a dilatory death.[1]

The Jesuit Parennim, writing to a member of the Royal Academy of Sciences, says, "Another thing that you can scarcely believe is, that dearths should be so frequent in China;"[2] and in the conclusion of his letter he remarks that, if famine did not, from time to time, thin the immense number of inhabitants which China contains, it would be impossible for her to live in peace.[3] The causes of these frequent famines he endeavours to investigate; and begins by observing, very justly, that in a time of dearth China can obtain no assistance from her neighbours, and must necessarily draw the whole of her resources from her own provinces.[4] He then describes the delays and artifices which often defeat the emperor's intentions to assist, from the public granaries, those parts of the country which are the most distressed. When a harvest fails in any province, either from excessive drought or a sudden inundation, the great mandarins have recourse to the public granaries; but often find them empty, owing to the dishonesty of the inferior mandarins, who have the charge of them. Examinations and researches are then made, and an unwillingness prevails to inform the court of such disagreeable intelligence. Memorials are however at length presented. These memorials pass through many hands, and do not reach the emperor till after many days. The great officers of state are then ordered to assemble, and to deliberate on the means of relieving the misery of the people. Declarations full of expressions of compassion for the people are in the meantime published throughout the empire. The resolution of the tribunal is at length made known; but numberless other ceremonies delay its execution; while those who are suffering have time to die with hunger before the remedy arrives. Those who do not wait for this last extremity crawl as well as they can into other districts, where they hope to get support, but leave the greatest part of their number dead on the road.[5]

[1] Meares's Voyage, ch. vii. p. 92.
[2] Lettres Edif. et Curieuses, tom. xxii. p. 174.
[3] Id. p. 186.
[4] Id. p. 175.
[5] Id. p. 180.

If, when a dearth occurs, the court do not make some attempt to relieve the people, small parties of plunderers soon collect, and their numbers increase by degrees, so as to interrupt the tranquillity of the province. On this account numerous orders are always given, and movements are continually taking place, to amuse the people till the famine is over; and as the motives to relieve the people are generally rather reasons of state than genuine compassion, it is not probable that they should be relieved at the time, and in the manner, that their wants require.[1]

The last cause of famine which is mentioned in this investigation, and on which the writer lays considerable stress, is the very great consumption of grain in making spirits;[2] but in stating this as a cause of famine, he has evidently fallen into a very gross error; yet in the Abbé Grosier's general description of China this error has been copied, and the cause above mentioned has been considered as one of the grand sources of the evil.[3] But, in reality, the whole tendency of this cause is in a contrary direction. The consumption of corn in any other way but that of necessary food checks the population before it arrives at the utmost limits of subsistence; and as the grain may be withdrawn from this particular use in the time of a scarcity, a public granary is thus opened, richer probably than could have been formed by any other means. When such a consumption has been once established, and has become permanent, its effect is exactly as if a piece of land, with all the people upon it, were removed from the country. The rest of the people would certainly be precisely in the same state as they were before, neither better nor worse, in years of average plenty; but in the time of dearth the produce of this land would be returned to them, without the mouths to help them to eat it. China, without her distilleries, would certainly be more populous; but on a failure of the seasons would have still less resource than she has at present; and, as far as the magnitude of the cause would operate, would in consequence be more subject to famines, and those famines would be more severe.

The state of Japan resembles in so many respects that of China, that a particular consideration of it would lead into too many repetitions. Montesquieu attributes its populousness to the birth of a greater number of females;[4] but the principal

[1] Lettres Edif. et Curieuses, tom. xxii. p. 187. [2] Id. p. 184.
[3] Vol. i. b. iv. c. iii. p. 396. 8vo. Eng. tran.
[4] Liv. xxiii. c. xii. It is surprising that Montesquieu, who appears sometimes to understand the subject of population, should at other times make such observations as this.

cause of this populousness is, without doubt, as in China, the persevering industry of the natives, directed, as it has always been, principally to agriculture.

In reading the preface to Thunberg's account of Japan, it would seem extremely difficult to trace the checks to the population of a country, the inhabitants of which are said to live in such happiness and plenty; but the continuation of his own work contradicts the impression of his preface; and in the valuable history of Japan by Kæmpfer these checks are sufficiently obvious. In the extracts from two historical chronicles published in Japan, which he produces,[1] a very curious account is given of the different mortalities, plagues, famines, bloody wars, and other causes of destruction which have occurred since the commencement of these records. The Japanese are distinguished from the Chinese in being much more warlike, seditious, dissolute, and ambitious: and it would appear, from Kæmpfer's account, that the check to population from infanticide, in China, is balanced by the greater dissoluteness of manners with regard to the sex, and the greater frequency of wars and intestine commotions which prevail in Japan. With regard to the positive checks to population from disease and famine, the two countries seem to be nearly on a level.

[1] Book ii.

CHAPTER XIII

OF THE CHECKS TO POPULATION AMONG THE GREEKS

It has been generally allowed, and will not indeed admit of a doubt, that the more equal division of property among the Greeks and Romans, in the early period of their history, and the direction of their industry principally to agriculture, must have tended greatly to encourage population. Agriculture is not only, as Hume states,[1] that species of industry which is chiefly requisite to the subsistence of multitudes, but it is in fact the *sole* species by which multitudes can exist; and all the numerous arts and manufactures of the modern world, by which such numbers appear to be supported, have no tendency whatever to increase population, except so far as they tend to increase the quantity and to facilitate the distribution of the products of agriculture.

In countries where, from the operation of particular causes, property in land is divided into very large shares, these arts and manufactures are absolutely necessary to the existence of any considerable population. Without them modern Europe would be unpeopled. But where property is divided into small shares, the same necessity for them does not exist. The division itself attains immediately one great object, that of distribution; and if the demand for men be constant, to fight the battles and support the power and dignity of the state, we may easily conceive that this motive, joined to the natural love of a family, might be sufficient to induce each proprietor to cultivate his land to the utmost, in order that it might support the greatest number of descendants.

The division of people into small states, during the early periods of Greek and Roman history, gave additional force to this motive. Where the number of free citizens did not perhaps exceed ten or twenty thousand, each individual would naturally feel the value of his own exertions; and knowing that the state to which he belonged, situated in the midst of envious and watchful rivals, must depend chiefly on its population for its means of defence and safety, would be sensible that, in suffering the lands which were allotted to him to lie idle, he would be

[1] Essay xi. p. 467. 4to. edit.

deficient in his duty as a citizen. These causes appear to have produced a considerable attention to agriculture, without the intervention of the artificial wants of mankind to encourage it. Population followed the products of the earth with more than equal pace; and when the overflowing numbers were not taken off by the drains of war or disease, they found vent in frequent and repeated colonisation. The necessity of these frequent colonisations, joined to the smallness of the states, which brought the subject immediately home to every thinking person, could not fail to point out to the legislators and philosophers of those times the strong tendency of population to increase beyond the means of subsistence; and they did not, like the statesmen and projectors of modern days, overlook the consideration of a question which so deeply affects the happiness and tranquillity of society. However we may justly execrate the barbarous expedients which they adopted to remove the difficulty, we cannot but give them some credit for their penetration in seeing it; and in being fully aware that, if not considered and obviated, it would be sufficient of itself to destroy their best-planned schemes of republican equality and happiness.

The power of colonisation is necessarily limited; and after the lapse of some time it might be extremely difficult, if not impossible, for a country, not particularly well suited for this purpose, to find a vacant spot proper for the settlement of its expatriated citizens. It was necessary therefore to consider of other resources besides colonisation.

It is probable that the practice of infanticide had prevailed from the earliest ages in Greece. In the parts of America where it was found to exist it appears to have originated from the extreme difficulty of rearing many children in a savage and wandering life, exposed to frequent famines and perpetual wars. We may easily conceive that it had a similar origin among the ancestors of the Greeks or the native inhabitants of the country. And, when Solon permitted the exposing of children, it is probable that he only gave the sanction of law to a custom already prevalent.

In this permission he had without doubt two ends in view. First, that which is most obvious, the prevention of such an excessive population as would cause universal poverty and discontent; and, secondly, that of keeping the population up to the level of what the territory could support, by removing the terrors of too numerous a family, and consequently the principal obstacle to marriage. From the effect of this practice in China

we have reason to think that it is better calculated to attain the latter than the former purpose. But if the legislator either did not see this, or if the barbarous habits of the times prompted parents invariably to prefer the murder of their children to poverty, the practice would appear to be very particularly calculated to answer both the ends in view; and to preserve, as completely and as constantly as the nature of the thing would permit, the requisite proportion between the food and the numbers which were to consume it.

On the very great importance of attending to this proportion, and the evils that must necessarily result, of weakness on the one hand, or of poverty on the other, from the deficiency or the excess of population, the Greek political writers strongly insist; and propose in consequence various modes of maintaining the relative proportion desired.

Plato, in the republic which he considers in his books of laws, limits the number of free citizens and of habitations to five thousand and forty; and this number he thinks may be preserved if the father of every family choose one out of his sons for his successor to the lot of land which he has possessed, and, disposing of his daughters in marriage according to law, distribute his other sons, if he have any, to be adopted by those citizens who are without children. But if the number of children upon the whole be either too great or too few, the magistrate is to take the subject particularly into his consideration, and to contrive so that the same number of five thousand and forty families should still be maintained. There are many modes, he thinks, of effecting this object. Procreation, when it goes on too fast, may be checked, or, when it goes on too slow, may be encouraged, by the proper distribution of honours and marks of ignominy, and by the admonitions of the elders, to prevent or promote it according to circumstances.[1]

In his Philosophical Republic[2] he enters more particularly into this subject, and proposes that the most excellent among the men should be joined in marriage to the most excellent among the women, and the inferior citizens matched with the inferior females; and that the offspring of the first should be brought up, of the others not. On certain festivals appointed by the laws, the young men and women who are betrothed are to be assembled, and joined together with solemn ceremonies. But the number of marriages is to be determined by the magistrates; that, taking into consideration the drains from wars,

[1] Plato de Legibus, lib. v.

[2] Plato de Republicâ, lib. v.

diseases, and other causes, they may preserve, as nearly as possible, such a proportion of citizens as will be neither too numerous nor too few, according to the resources and demands of the state. The children who are thus born from the most excellent of the citizens, are to be carried to certain nurses destined to this office, inhabiting a separate part of the city; but those which are born from the inferior citizens, and any from the others which are imperfect in their limbs, are to be buried in some obscure and unknown place.

He next proceeds to consider the proper age for marriage, and determines it to be twenty for the women and thirty for the men. Beginning at twenty, the woman is to bear children for the state till she is forty, and the man is to fulfil his duty in this respect from thirty to fifty-five. If a man produce a child into public either before or after this period, the action is to be considered in the same criminal and profane light as if he had produced one without the nuptial ceremonies, and instigated solely by incontinence. The same rule should hold, if a man who is of the proper age for procreation be connected with a woman who is also of the proper age, but without the ceremony of marriage by the magistrate; he is to be considered as having given to the state a spurious, profane, and incestuous offspring. When both sexes have passed the age assigned for presenting children to the state, Plato allows a great latitude of intercourse; but no child is to be brought to light. Should any infant by accident be born alive, it is to be exposed in the same manner as if the parents could not support it.[1]

From these passages it is evident that Plato fully saw the tendency of population to increase beyond the means of subsistence. His expedients for checking it are indeed execrable; but the expedients themselves, and the extent to which they were to be used, show his conceptions of the magnitude of the difficulty. Contemplating, as he certainly must do in a small republic, a great proportional drain of people by wars, if he could still propose to destroy the children of all the inferior and less perfect citizens, to destroy also all that were born not within the prescribed ages and with the prescribed forms, to fix the age of marriage late, and after all to regulate the number of these marriages, his experience and his reasonings must have strongly pointed out to him the great power of the principle of increase, and the necessity of checking it.

Aristotle appears to have seen this necessity still more clearly.

[1] Plato de Repub. lib. v.

He fixes the proper age of marriage at thirty-seven for the men, and eighteen for the women, which must of course condemn a great number of women to celibacy, as there never can be so many men of thirty-seven as there are women of eighteen. Yet, though he has fixed the age of marriage for the men at so late a period, he still thinks that there may be too many children, and proposes that the number allowed to each marriage should be regulated; and, if any woman be pregnant after she has produced the prescribed number, that an abortion should be procured before the fœtus has life.

The period of procreating children for the state is to cease with the men at fifty-four or fifty-five, because the offspring of old men, as well as of men too young, is imperfect both in body and mind. When both sexes have passed the prescribed age, they are allowed to continue a connection; but, as in Plato's republic, no child which may be the result is to be brought to light.[1]

In discussing the merits of the republic proposed by Plato in his books of laws, Aristotle is of opinion that he has by no means been sufficiently attentive to the subject of population; and accuses him of inconsistency in equalising property without limiting the number of children. The laws on this subject, Aristotle very justly observes, require to be much more definite and precise in a state where property is equalised than in others. Under ordinary governments an increase of population would only occasion a greater subdivision of landed property; whereas in such a republic the supernumeraries would be altogether destitute, because the lands, being reduced to equal and as it were elementary parts, would be incapable of further partition.[2]

He then remarks that it is necessary in all cases to regulate the proportion of children, that they may not exceed the proper number. In doing this, deaths and barrenness are of course to be taken into consideration. But if, as in the generality of states, every person be left free to have as many children as he pleases, the necessary consequence must be poverty; and poverty is the mother of villainy and sedition. On this account Pheidon of Corinth, one of the most ancient writers on the subject of politics, introduced a regulation directly the

[1] Aristotelis Opera, de Repub. lib. vii. c. xvi.

[2] De Repub. lib. ii. c. vi. Gillies's Aristot. vol. ii. b. ii. p. 87. For the convenience of those who may not choose the trouble of consulting the original, I refer at the same time to Gillies's translation; but some passages he has wholly omitted, and of others he has not given the literal sense, his object being a free version.

reverse of Plato's, and limited population without equalising possessions.[1]

Speaking afterwards of Phaleas of Chalcedon, who proposed, as a most salutary institution, to equalise wealth among the citizens, he adverts again to Plato's regulations respecting property; and observes that those who would thus regulate the extent of fortunes, ought not to be ignorant that it is absolutely necessary at the same time to regulate the number of children. For if children multiply beyond the means of supporting them, the law will necessarily be broken, and families will be suddenly reduced from opulence to beggary — a revolution always dangerous to public tranquillity.[2]

It appears from these passages that Aristotle clearly saw that the strong tendency of the human race to increase, unless checked by strict and positive laws, was absolutely fatal to every system founded on equality of property; and there cannot surely be a stronger argument against any system of this kind than the necessity of such laws as Aristotle himself proposes.

From a remark which he afterwards makes respecting Sparta, it appears still more clearly that he fully understood the principle of population. From the improvidence of the laws relating to succession, the landed property in Sparta had been engrossed by a few; and the effect was greatly to diminish the populousness of the country. To remedy this evil, and to supply men for continual wars, the kings preceding Lycurgus had been in the habit of naturalising strangers. It would have been much better however, according to Aristotle, to have increased the number of citizens by a nearer equalisation of property. But the law relating to children was directly adverse to this improvement. The legislator, wishing to have many citizens, had encouraged as much as possible the procreation of children. A man who had three sons was exempt from the night-watch; and he who had four enjoyed a complete immunity from all public burdens. But it is evident, as Aristotle most justly observes, that the birth of a great number of children, the division of the lands remaining the same, would necessarily cause only an accumulation of poverty.[3]

He here seems to see exactly the error into which many other legislators besides Lycurgus have fallen; and to be fully aware that to encourage the birth of children, without providing

[1] De Repub. lib. ii. c. vii. Gillies's Aristot. vol. ii. b. ii. p. 87.
[2] De Repub. lib. ii. c. vii. Gillies's Aristot. vol. ii. b. ii. p. 91.
[3] De Repub. lib. ii. c. ix. Gillies's Aristot. vol. ii. b. ii. p. 107.

properly for their support, is to obtain a very small accession to the population of a country at the expense of a very great accession of misery.

The legislator of Crete,[1] as well as Solon, Pheidon, Plato, and Aristotle, saw the necessity of checking population in order to prevent general poverty; and as we must suppose that the opinions of such men, and the laws founded upon them, would have considerable influence, it is probable that the preventive check to increase, from late marriages and other causes, operated in a considerable degree among the free citizens of Greece.

For the positive checks to population we need not look beyond the wars in which these small states were almost continually engaged; though we have an account of one wasting plague, at least, in Athens; and Plato supposes the case of his republic being greatly reduced by disease.[2] Their wars were not only almost constant, but extremely bloody. In a small army, the whole of which would probably be engaged in close fight, a much greater number in proportion would be slain than in the large modern armies, a considerable part of which often remains untouched;[3] and as all the free citizens of these republics were generally employed as soldiers in every war, losses would be felt very severely, and would not appear to be very easily repaired.

[1] Aristot. de Repub. lib. ii. c. x. Gillies's Aristot. vol. ii. b. ii. p. 113.
[2] De Legibus, lib. v. [3] Hume's Essay, c. xi. p. 451.

CHAPTER XIV

OF THE CHECKS TO POPULATION AMONG THE ROMANS

The havoc made by war in the smaller states of Italy, particularly during the first struggles of the Romans for power, seems to have been still greater than in Greece. Wallace, in his Dissertation on the Numbers of Mankind, after alluding to the multitudes which fell by the sword in these times, observes, "On an accurate review of the history of the Italians during this period, we should wonder how such vast multitudes could be raised as were engaged in those continual wars till Italy was entirely subdued."[1] And Livy expresses his utter astonishment that the Volsci and Æqui, so often as they were conquered, should have been able to bring fresh armies into the field.[2] But these wonders will perhaps be sufficiently accounted for, if we suppose, what seems to be highly probable, that the constant drains from wars had introduced the habit of giving nearly full scope to the power of population; and that a much larger proportion of births, and of healthy children, were rising into manhood and becoming fit to bear arms, than is usual in other states not similarly circumstanced. It was, without doubt, the rapid influx of these supplies which enabled them, like the ancient Germans, to astonish future historians, by renovating in so extraordinary a manner their defeated and half-destroyed armies.

Yet there is reason to believe that the practice of infanticide prevailed in Italy as well as in Greece from the earliest times. A law of Romulus forbade the exposing of children before they were three years old,[3] which implies that the custom of exposing them as soon as they were born had before prevailed. But this practice was of course never resorted to unless when the drains from wars were insufficient to make room for the rising generation; and consequently, though it may be considered as one of the positive checks to the full power of increase, yet, in the actual state of things, it certainly contributed rather to promote than impede population.

Among the Romans themselves, engaged as they were in incessant wars from the beginning of their republic to the end of it,

[1] Dissertation, p. 62. 8vo. 1763, Edinburgh.
[2] Lib. vi. c. xii.
[3] Dionysius Halicarn. lib. ii. 15.

many of which were dreadfully destructive, the positive check to population from this cause alone must have been enormously great. But this cause alone, great as it was, would never have occasioned that want of Roman citizens under the emperors which prompted Augustus and Trajan to issue laws for the encouragement of marriage and of children, if other causes, still more powerful in depopulation, had not concurred.

When the equality of property, which had formerly prevailed in the Roman territory, had been destroyed by degrees, and the land had fallen into the hands of a few great proprietors, the citizens, who were by this change successively deprived of the means of supporting themselves, would naturally have no resource to prevent them from starving but that of selling their labour to the rich, as in modern states: but from this resource they were completely cut off by the prodigious number of slaves, which, increasing by constant influx with the increasing luxury of Rome, filled up every employment both in agriculture and manufactures. Under such circumstances, so far from being astonished that the number of free citizens should decrease, the wonder seems to be that any should exist besides the proprietors. And in fact many could not have existed but for a strange and preposterous custom, which, however, the strange and unnatural state of the city might perhaps require, that of distributing vast quantities of corn to the poorer citizens gratuitously. Two hundred thousand received this distribution in Augustus's time; and it is highly probable that a great part of them had little else to depend upon. It is supposed to have been given to every man of full years; but the quantity was not enough for a family, and too much for an individual.[1] It could not therefore enable them to increase; and, from the manner in which Plutarch speaks of the custom of exposing children among the poor,[2] there is great reason to believe that many were destroyed in spite of the *jus trium liberorum*. The passage in Tacitus, in which, speaking of the Germans, he alludes to this custom in Rome, seems to point to the same conclusion.[3] What effect,

[1] Hume, Essay xi. p. 488.

[2] De Amore Prolis.

[3] De Moribus Germanorum, 19. How completely the laws relating to the encouragement of marriage and of children were despised, appears from a speech of Minucius Felix in Octavio, cap. 30. "*Vos enim video procreatos filios nunc feris et avibus exponere, nunc adstrangulatos misero mortis genere elidere; sunt quæ in ipsis visceribus medicaminibus epotis originem futuri hominis extinguant, et parricidum faciunt antequam pariant.*"

This crime had grown so much into a custom in Rome, that even Pliny attempts to excuse it: "Quoniam aliquarum fecunditas plena liberis tali veniâ indiget. Lib. xxix. c. iv.

indeed, could such a law have among a set of people, who appear to have been so completely excluded from all the means of acquiring a subsistence, except that of charity, that they would be scarcely able to support themselves, much less a wife and two or three children? If half of the slaves had been sent out of the country, and the people had been employed in agriculture and manufactures, the effect would have been to increase the number of Roman citizens with more certainty and rapidity than ten thousand laws for the encouragement of children.

It is possible that the *jus trium liberorum*, and the other laws of the same tendency, might have been of some little use among the higher classes of Roman citizens; and indeed from the nature of these laws, consisting as they did principally of privileges, it would appear that they were directed chiefly to this part of society. But vicious habits of every possible kind preventive of population [1] seem to have been so generally prevalent at this period, that no corrective laws could have any considerable influence. Montesquieu justly observes that "the corruption of manners had destroyed the office of censor, which had been established itself to destroy the corruption of manners; but when the corruption of manners becomes general, censure has no longer any force." [2] Thirty-four years after the passing of the law of Augustus respecting marriage, the Roman knights demanded its repeal. On separating the married and the unmarried, it appeared that the latter considerably exceeded in number the former; a strong proof of the inefficacy of the law.[3]

In most countries vicious habits preventive of population appear to be a consequence, rather than a cause, of the infrequency of marriage; but in Rome the depravity of morals seems to have been the direct cause which checked the marriage union, at least among the higher classes. It is impossible to read the speech of Metellus Numidicus in his censorship without indignation and disgust. "If it were possible," he says, "entirely to go without wives, we would deliver ourselves at once from this evil; but as the laws of nature have so ordered it that we can neither live happy with them nor continue the species without them, we ought to have more regard for our lasting security than for our transient pleasures." [4]

[1] Sed jacet aurato vix ulla puerpera lecto;
Tantum artes hujus, tantum medicamina possunt,
Quæ steriles facit, atque homines in ventre necandos
Conducit.————————Juvenal, Sat. vi. 593.

[2] Esprit des Loix, liv. xxiii. c. 21.

[3] Id. c. 21.

[4] Aulus Gellius, lib. i. c. 6.

Positive laws to encourage marriage and population, enacted on the urgency of the occasion, and not mixed with religion, as in China and some other countries, are seldom calculated to answer the end which they aim at, and therefore generally indicate ignorance in the legislator who proposes them; but the apparent necessity of such laws almost invariably indicates a very great degree of moral and political depravity in the state; and in the countries in which they are most strongly insisted on, not only vicious manners will generally be found to prevail, but political institutions extremely unfavourable to industry, and consequently to population.

On this account I cannot but agree with Wallace[1] in thinking that Hume was wrong in his supposition, that the Roman world was probably the most populous during the long peace under Trajan and the Antonines.[2] We well know that wars do not depopulate much while industry continues in vigour; and that peace will not increase the number of people when they cannot find the means of subsistence. The renewal of the laws relating to marriage under Trajan indicates the continued prevalence of vicious habits and of a languishing industry, and seems to be inconsistent with the supposition of a great increase of population.

It might be said perhaps that the vast profusion of slaves would more than make up for the want of Roman citizens; but it appears that the labour of these slaves was not sufficiently directed to agriculture to support a very great population. Whatever might be the case with some of the provinces, the decay of agriculture in Italy seems to be generally acknowledged. The pernicious custom of importing great quantities of corn to distribute gratuitously among the people had given it a blow from which it never afterwards recovered. Hume observes that "when the Roman authors complain that Italy, which formerly exported corn, became dependent on all the provinces for its daily bread, they never ascribed this alteration to the increase of its inhabitants, but to the neglect of tillage and agriculture."[3] And in another place he says, "All ancient authors tell us that there was a perpetual influx of slaves to Italy from the remoter provinces, particularly Syria, Cilicia, Cappadocia, and the lesser Asia, Thrace, and Egypt; yet the number of people did not increase in Italy; and writers complain of the continual decay of industry and agriculture."[4] It seems but little probable

[1] Dissertation, Appendix, p. 247.
[2] Essay xi. p. 505.
[3] Id. p. 504.
[4] Id. p. 433.

that the peace under Trajan and the Antonines should have given so sudden a turn to the habits of the people as essentially to alter this state of things.

On the condition of slavery it may be observed that there cannot be a stronger proof of its unfavourableness to the propagation of the species in the countries where it prevails, than the necessity of this continual influx. This necessity forms at once a complete refutation of the observation of Wallace, that the ancient slaves were more serviceable in raising up people than the inferior ranks of men in modern times.[1] Though it is undoubtedly true, as he observes, that all our labourers do not marry, and that many of their children die, or become sickly and useless through the poverty and negligence of their parents;[2] yet, notwithstanding these obstacles to increase, there is perhaps scarcely an instance to be produced where the lower classes of society in any country, if free, do not raise up people fully equal to the demand for their labour.

To account for the checks to population which are peculiar to a state of slavery, and which render a constant recruit of numbers necessary, we must adopt the comparison of slaves to cattle which Wallace and Hume have made; Wallace, to show that it would be the interest of masters to take care of their slaves and rear up their offsprings;[3] and Hume, to prove that it would more frequently be the interest of the master to prevent than to encourage their breeding.[4] If Wallace's observation had been just, it is not to be doubted that the slaves would have kept up their own numbers with ease by procreation; and as it is acknowledged that they did not do this, the truth of Hume's observation is clearly evinced. "To rear a child in London till he could be serviceable, would cost much dearer than to buy one of the same age in Scotland or Ireland, where he had been raised in a cottage, covered with rags, and fed on oatmeal and potatoes. Those who had slaves therefore, in all the richer and more populous countries, would discourage the pregnancy of the females, and either prevent or destroy the birth."[5] It is acknowledged by Wallace that the male slaves greatly exceeded in number the females,[6] which must necessarily be an additional obstacle to their increase. It would appear therefore that the preventive check to population must have operated with very great force among the Greek and Roman slaves; and as they

[1] Dissert. on the Numbers of Mankind, p. 91.
[2] Id. p. 88.
[3] Id. p. 89.
[4] Hume, Essay xi. p. 433.
[5] Id. p. 433.
[6] Appendix to Dissertation, p. 182.

were often ill treated, fed perhaps scantily, and sometimes great numbers of them confined together in close and unwholesome *ergastula*, or dungeons,[1] it is probable that the positive checks to population from disease were also severe, and that when epidemics prevailed, they would be most destructive in this part of the society.

The unfavourableness of slavery to the propagation of the species in the country where it prevails, is not however decisive of the question respecting the absolute population of such a country, or the greater question respecting the populousness of ancient and modern nations. We know that some countries could afford a great and constant supply of slaves without being in the smallest degree depopulated themselves; and if these supplies were poured in, as they probably would be, exactly in proportion to the demand for labour in the nation which received them, the question respecting the populousness of this nation would rest precisely on the same grounds as in modern states, and depend upon the number of people which it could employ and support. Whether the practice of domestic slavery therefore prevail or not, it may be laid down as a position not to be controverted, that, taking a sufficient extent of territory to include within it exportation and importation, and allowing some variation for the prevalence of luxury or of frugal habits, the population of these countries will always be in proportion to the food which the earth is made to produce. And no cause, physical or moral, unless it operate in an excessive and unusual manner,[2] will have any considerable and permanent effect on the population, except in as far as it influences the production and distribution of the means of subsistence.

In the controversy concerning the populousness of ancient and modern nations this point has not been sufficiently attended to; and physical and moral causes have been brought forward on both sides, from which no just inference in favour of either party could be drawn. It seems to have escaped the attention of both writers that the more productive and populous a country is in its actual state, the less probable will be its power of obtaining a further increase of produce; and consequently the more checks

[1] Hume, Essay xi. p. 430.

[2] The extreme insalubrity of Batavia, and perhaps the plague in some countries, may be considered as physical causes operating in an excessive degree. The extreme and unusual attachment of the Romans to a vicious celibacy, and the promiscuous intercourse in Otaheite, may be considered as moral causes of the same nature. Such instances, and others of the same kind, which might probably be found, make it necessary to qualify the general proposition as in the text.

must necessarily be called into action, to keep the population down to the level of this stationary or slowly increasing produce. From finding such checks, therefore, in ancient or modern nations, no inference can be drawn against the absolute populousness of either. On this account, the prevalence of the small-pox, and of other disorders unknown to the ancients, can by no means be considered as an argument against the populousness of modern nations, though to these physical causes both Hume[1] and Wallace[2] allow considerable weight.

In the moral causes which they have brought forward, they have fallen into a similar error. Wallace introduces the positive encouragements to marriage among the ancients as one of the principal causes of the superior populousness of the ancient world;[3] but the necessity of positive laws to encourage marriage certainly rather indicates a want than an abundance of people; and in the instance of Sparta, to which he particularly refers, it appears from the passage in Aristotle, mentioned in the last chapter, that the laws to encourage marriage were instituted for the express purpose of remedying a marked deficiency of people. In a country with a crowded and overflowing population, a legislator would never think of making express laws to encourage marriage and the procreation of children. Other arguments of Wallace will be found upon examination to be almost equally ineffectual to his purpose.

Some of the causes which Hume produces are in the same manner unsatisfactory, and rather make against the inference which he has in view than for it. The number of footmen, housemaids, and other persons remaining unmarried in modern states, he allows to be an argument against their populousness.[4] But the contrary inference of the two appears to be the more probable. When the difficulties attending the rearing a family are very great, and consequently many persons of both sexes remain single, we may naturally enough infer that population is stationary, but by no means that it is not absolutely great; because the difficulty of rearing a family may arise from the very circumstance of a great absolute population, and the consequent fulness of all the channels to a livelihood; though the same difficulty may undoubtedly exist in a thinly-peopled country, which is yet stationary in its population. The number of unmarried persons in proportion to the whole number may form some criterion by which we can judge whether population be increasing, stationary, or decreasing; but will not enable us

[1] Essay xi. p. 425. [2] Dissertation, p. 80. [3] Id. p. 93. [4] Essay xi.

to determine anything respecting absolute populousness. Yet even in this criterion we are liable to be deceived. In some of the southern countries early marriages are general, and very few women remain in a state of celibacy; yet the people not only do not increase, but the actual number is perhaps small. In this case the removal of the preventive check is made up by the excessive force of the positive check. The sum of all the positive and preventive checks taken together, forms undoubtedly the immediate cause which represses population; but we never can expect to obtain and estimate accurately this sum in any country; and we can certainly draw no safe conclusion from the contemplation of two or three of these checks taken by themselves, because it so frequently happens that the excess of one check is balanced by the defect of some other. Causes which affect the number of births or deaths may or may not affect the average population, according to circumstances; but causes which affect the production and distribution of the means of subsistence must necessarily affect population; and it is therefore upon these latter causes alone (independently of actual enumerations) that we can with certainty rely.

All the checks to population, which have been hitherto considered in the course of this review of human society, are clearly resolvable into moral restraint, vice, and misery.

Of that branch of the preventive check which I have denominated moral restraint, though it has certainly had some share in repressing the natural power of population, yet, taken in its strict sense, it must be allowed to have operated feebly, compared with the others. Of the other branch of the preventive check, which comes under the head of vice, though its effect appears to have been very considerable in the later periods of Roman history, and in some other countries; yet, upon the whole, its operation seems to have been inferior to the positive checks. A large portion of the procreative power appears to have been called into action, the redundancy from which was checked by violent causes. Among these, war is the most prominent and striking feature; and after this may be ranked famines and violent diseases. In most of the countries considered, the population seems to have been seldom measured accurately according to the average and permanent means of subsistence, but generally to have vibrated between the two extremes; and consequently the oscillations between want and plenty are strongly marked, as we should naturally expect among less civilised nations.

BOOK II

OF THE CHECKS TO POPULATION IN THE DIFFERENT STATES OF MODERN EUROPE

CHAPTER I

OF THE CHECKS TO POPULATION IN NORWAY

In reviewing the states of modern Europe, we shall be assisted in our inquiries by registers of births, deaths, and marriages, which, when they are complete and correct, point out to us with some degree of precision whether the prevailing checks to population are of the positive or preventive kind. The habits of most European nations are of course much alike, owing to the similarity of the circumstances in which they are placed; and it is to be expected therefore that their registers should sometimes give the same results. Relying however too much upon this occasional coincidence, political calculators have been led into the error of supposing that there is, generally speaking, an invariable order of mortality in all countries: but it appears, on the contrary, that this order is extremely variable; that it is very different in different places of the same country, and within certain limits depends upon circumstances which it is in the power of man to alter.

Norway, during nearly the whole of the last century, was in a peculiar degree exempt from the drains of people by war. The climate is remarkably free from epidemic sicknesses; and, in common years, the mortality is less than in any other country in Europe, the registers of which are known to be correct.[1] The proportion of the annual deaths to the whole population, on an average throughout the whole country, is only as 1 to 48.[2] Yet the population of Norway never seems to have increased with great rapidity. It has made a start within the last ten or fifteen years; but till that period its progress must have been very

[1] The registers for Russia give a smaller mortality; but it is supposed that they are defective. It appears, however, that in England and Wales during the ten years ending with 1820, the mortality was still less than in Norway.

[2] Thaarup's Statistik der Danischen Monarchie, vol. ii. p. 4.

slow, as we know that the country was peopled in very early ages, and in 1769 its population was only 723,141.[1]

Before we enter upon an examination of its internal economy, we must feel assured that, as the positive checks to its population have been so small, the preventive checks must have been proportionably great; and we accordingly find from the registers that the proportion of yearly marriages to the whole population is as 1 to 130,[2] which is a smaller proportion of marriages than appears in the registers of any other country, except Switzerland.

One cause of this small number of marriages is the mode in which the enrolments for the army have been conducted till within a very few years. Every man in Denmark and Norway born of a farmer or labourer is a soldier.[3] Formerly the commanding officer of the district might take these peasants at any age he pleased; and he in general preferred those that were from twenty-five to thirty, to such as were younger. After being taken into the service, a man could not marry without producing a certificate, signed by the minister of the parish, that he had substance enough to support a wife and family; and even then it was further necessary for him to obtain the permission of the officer. The difficulty, and sometimes the expense, of obtaining this certificate and permission, generally deterred those who were not in very good circumstances from thinking of marriage till their service of ten years was expired; and as they might be enrolled at any age under thirty-six, and the officers were apt to take the oldest first, it would often be late in life before they could feel themselves at liberty to settle.

Though the minister of the parish had no legal power to prevent a man from marrying who was not enrolled for service, yet it appears that custom had in some degree sanctioned a

[1] Thaarup's Statistik der Danischen Monarchie, vol. ii. Table ii. p. 5.

[2] Id. p. 4. The proportion of yearly marriages to the whole population is one of the most obvious criterions of the operation of the preventive check, though not quite a correct one. Generally speaking, the preventive check is greater than might be inferred from this criterion; because in the healthy countries of Europe, where a small proportion of marriages takes place, the greater number of old people living at the time of these marriages will be more than counterbalanced by the smaller proportion of persons under the age of puberty. In such a country as Norway, the persons from 20 to 50, that is, of the most likely age to marry, bear a greater proportion to the whole population than in most of the other countries of Europe; and consequently the actual proportion of marriages in Norway, compared with that of others, will not express the full extent in which the preventive check operates.

[3] The few particulars which I shall mention relating to Norway were collected during a summer excursion in that country in the year 1799.

discretionary power of this kind, and the priest often refused to join a couple together when the parties had no probable means of supporting a family.

Every obstacle, however, of this nature, whether arising from law or custom, has now been entirely removed. A full liberty is given to marry at any age, without leave either of the officer or priest; and in the enrolments for the army all those of the age of twenty are taken first, then all those of twenty-two, and so on till the necessary number is completed.

The officers in general disapprove of this change. They say that a young Norwegian has not arrived at his full strength and does not make a good soldier at twenty. And many are of opinion that the peasants will now marry too young, and that more children will be born than the country can support.

But, independently of any regulations respecting the military enrolments, the peculiar state of Norway throws very strong obstacles in the way of early marriages. There are no large manufacturing towns to take off the overflowing population of the country; and as each village naturally furnishes from itself a supply of hands more than equal to the demand, a change of place in search of work seldom promises any success. Unless therefore an opportunity of foreign emigration offer, the Norwegian peasant generally remains in the village in which he was born; and as the vacancies in houses and employments must occur very slowly, owing to the small mortality that takes place, he will often see himself compelled to wait a considerable time before he can attain a situation which will enable him to rear a family.

The Norway farms have in general a certain number of married labourers employed upon them, in proportion to their size, who are called housemen. They receive from the farmer a house, and a quantity of land nearly sufficient to maintain a family; in return for which they are under the obligation of working for him at a low and fixed price, whenever they are called upon. Except in the immediate neighbourhood of the towns, and on the sea-coast, the vacancy of a place of this kind is the only prospect which presents itself of providing for a family. From the small number of people, and the little variety of employment, the subject is brought distinctly within the view of each individual; and he must feel the absolute necessity of repressing his inclinations to marriage till some such vacancy offer. If, from the plenty of materials, he should be led to build a house for himself, it could not be expected that the farmer, if he had a

sufficient number of labourers before, should give him an adequate portion of land with it; and though he would in general find employment for three or four months in the summer, yet there would be little chance of his earning enough to support a family during the whole year. It is probable that it was in cases of this kind, where the impatience of the parties prompted them to build, or propose to build a house themselves, and trust to what they could earn, that the parish priests exercised the discretionary power of refusing to marry.

The young men and women therefore are obliged to remain with the farmers as unmarried servants, till a houseman's place becomes vacant: and of these unmarried servants there is in every farm and every gentleman's family a much greater proportion than the work would seem to require. There is but little division of labour in Norway. Almost all the wants of domestic economy are supplied in each separate household. Not only the common operations of brewing, baking, and washing are carried on at home, but many families make or import their own cheese and butter, kill their own beef and mutton, import their own grocery stores; and the farmers and country people in general spin their own flax and wool, and weave their own linen and woollen clothes. In the largest towns, such as Christiania and Drontheim, there is nothing that can be called a market. It is extremely difficult to get a joint of fresh meat; and a pound of fresh butter is an article not to be purchased, even in the midst of summer. Fairs are held at certain seasons of the year, and stores of all kinds of provisions that will keep are laid in at these times; and, if this care be neglected, great inconveniences are suffered, as scarcely anything is to be bought retail. Persons who make a temporary residence in the country, or small merchants not possessed of farms, complain heavily of this inconvenience; and the wives of merchants, who have large estates, say that the domestic economy of a Norway family is so extensive and complicated, that the necessary superintendence of it requires their whole attention, and that they can find no time for anything else.

It is evident that a system of this kind must require a great number of servants. It is said besides, that they are not remarkable for diligence, and that to do the same quantity of work more are necessary than in other countries. The consequence is, that in every establishment the proportion of servants will be found two or three times as great as in England; and a farmer in the country, who in his appearance is not to be distin-

guished from any of his labourers, will sometimes have a household of twenty persons, including his own family.

The means of maintenance to a single man are, therefore, much less confined than to a married man; and under such circumstances the lower classes of people cannot increase much, till the increase of mercantile stock, or the division and improvement of farms, furnishes a greater quantity of employment for married labourers. In countries more fully peopled this subject is always involved in great obscurity. Each man naturally thinks that he has as good a chance of finding employment as his neighbour; and that, if he fail in one place, he shall succeed in some other. He marries, therefore, and trusts to fortune; and the effect too frequently is that redundant population occasioned in this manner is repressed by the positive checks of poverty and disease. In Norway the subject is not involved in the same obscurity. The number of additional families, which the increasing demand for labour will support, is more distinctly marked. The population is so small that even in the towns it is difficult to fall into any considerable error on this subject; and in the country the division and improvement of an estate, and the creation of a greater number of housemen's places, must be a matter of complete notoriety. If a man can obtain one of these places, he marries, and is able to support a family; if he cannot obtain one, he remains single. A redundant population is thus prevented from taking place, instead of being destroyed after it has taken place.

It is not to be doubted that the general prevalence of the preventive check to population, owing to the state of society which has been described, together with the obstacles thrown in the way of early marriages from the enrolments for the army, have powerfully contributed to place the lower classes of people in Norway in a better situation than could be expected from the nature of the soil and climate. On the sea-coast, where, on account of the hopes of an adequate supply of food from fishing, the preventive check does not prevail in the same degree, the people are very poor and wretched; and, beyond comparison, in a worse state than the peasants in the interior of the country.

The greatest part of the soil in Norway is absolutely incapable of bearing corn, and the climate is subject to the most sudden and fatal changes. There are three nights about the end of August which are particularly distinguished by the name of iron nights, on account of their sometimes blasting the promise of the fairest crops. On these occasions the lower classes of people

necessarily suffer; but as there are scarcely any independent labourers, except the housemen that have been mentioned, who all keep cattle, the hardship of being obliged to mix the inner bark of the pine with their bread is mitigated by the stores of cheese, of salt butter, of salt meat, salt fish, and bacon, which they are generally enabled to lay up for the winter provision. The period in which the want of corn presses the most severely is generally about two months before harvest; and at this time the cows, of which the poorest housemen have generally two or three, and many five or six, begin to give milk, which must be a great assistance to the family, particularly to the younger part of it. In the summer of the year 1799, the Norwegians appeared to wear a face of plenty and content, while their neighbours the Swedes were absolutely starving; and I particularly remarked that the sons of housemen and the farmers' boys were fatter, larger, and had better calves to their legs than boys of the same age and in similar situations in England.

It is also without doubt owing to the prevalence of the preventive check to population, as much as to any peculiar healthiness of the air, that the mortality in Norway is so small. There is nothing in the climate or the soil that would lead to the supposition of its being in any extraordinary manner favourable to the general health of the inhabitants; but as in every country the principal mortality takes place among very young children, the smaller number of these in Norway, in proportion to the whole population, will naturally occasion a smaller mortality than in other countries, supposing the climate to be equally healthy.

It may be said, perhaps, and with truth, that one of the principal reasons of the small mortality in Norway is, that the towns are inconsiderable and few, and that few people are employed in unwholesome manufactories. In many of the agricultural villages of other countries, where the preventive check to population does not prevail in the same degree, the mortality is as small as in Norway. But it should be recollected, that the calculation in this case is for those particular villages alone; whereas in Norway the calculation of one in forty-eight is for the whole country. The redundant population of these villages is disposed of by constant emigrations to the towns, and the deaths of a great part of those that are born in the parish do not appear in the registers. But in Norway all the deaths are within the calculation, and it is clear that, if more were born than the country could support, a great mortality must take place in some form or other. If the people were not destroyed

by disease, they would be destroyed by famine. It is indeed well known that bad and insufficient food will produce disease and death in the purest air and the finest climate. Supposing therefore no great foreign emigration, and no extraordinary increase in the resources of the country, nothing but the more extensive prevalence of the preventive check to population in Norway can secure to her a smaller mortality than in other countries, however pure her air may be, or however healthy the employments of her people.

Norway seems to have been anciently divided into large estates or farms, called Gores; and as, according to the law of succession, all the brothers divide the property equally, it is a matter of surprise, and a proof how slowly the population has hitherto increased, that these estates have not been more subdivided. Many of them are indeed now divided into half gores and quarter gores, and some still lower; but it has in general been the custom on the death of the father for a commission to value the estate at a low rate, and if the eldest son can pay his brothers' and sisters' [1] shares, according to this valuation, by mortgaging his estate or otherwise, the whole is awarded to him: and the force of habit and natural indolence too frequently prompt him to conduct the farm after the manner of his forefathers, with few or no efforts at improvement.

Another great obstacle to the improvement of farms in Norway is a law which is called Odel's right, by which any lineal descendant can repurchase an estate which had been sold out of the family by paying the original purchase money. Formerly collateral as well as lineal descendants had this power, and the time was absolutely unlimited, so that the purchaser could never consider himself as secure from claims. Afterwards the time was limited to twenty years, and in 1771 it was still further limited to ten years, and all the collateral branches were excluded. It must however be an uninterrupted possession of ten years; for if, before the expiration of this term, a person who has a right to claim under the law give notice to the possessor that he does not forego his claim, though he is not then in a condition to make the purchase, the possessor is obliged to wait six years more before he is perfectly secure. And as in addition to this the eldest in the lineal descent may reclaim an estate that had been repurchased by a younger brother, the law, even in its present amended state, must be considered as a very great bar to improvement; and in its former state, when the time was unlimited

[1] A daughter's portion is the half of a son's portion.

and the sale of estates in this way was more frequent, it seems as if it must have been a most complete obstacle to the melioration of farms, and obviously accounts for the very slow increase of population in Norway for many centuries.

A further difficulty in the way of clearing and cultivating the land arises from the fears of the great timber merchants respecting the woods. When a farm has been divided among children and grandchildren, as each proprietor has a certain right in the woods, each in general endeavours to cut as much as he can; and the timber is thus felled before it is fit, and the woods spoiled. To prevent this, the merchants buy large tracts of woods of the farmers, who enter into a contract that the farm shall not be any further subdivided or more housemen placed upon it; at least that, if the number of families be increased, they should have no right in the woods. It is said that the merchants who make these purchases are not very strict, provided the smaller farmers and housemen do not take timber for their houses. The farmers who sell these tracts of woods are obliged by law to reserve to themselves the right of pasturing their cattle, and of cutting timber sufficient for their houses, repairs, and firing.

A piece of ground round a houseman's dwelling cannot be enclosed for cultivation without an application, first, to the proprietors of the woods, declaring that the spot is not fit for timber; and afterwards to a magistrate of the district, whose leave on this occasion is also necessary, probably for the purpose of ascertaining whether the leave of the proprietor had been duly obtained.

In addition to these obstacles to improved cultivation, which may be considered as artificial, the nature of the country presents an insuperable obstacle to a cultivation and population in any respect proportioned to the surface of the soil. The Norwegians, though not in a nomadic state, are still in a considerable degree in the pastoral state, and depend very much upon their cattle. The high grounds that border on the mountains are absolutely unfit to bear corn; and the only use to which they can be put is to pasture cattle upon them for three or four months during the summer. The farmers accordingly send all their cattle to these grounds at this time of the year, under the care of a part of their families; and it is here that they make all their butter and cheese for sale, or for their own consumption. The great difficulty is to support their cattle during the long winter, and for this purpose it is necessary that a considerable proportion of the most fertile land in the valleys should be mowed for hay.

If too much of it were taken into tillage, the number of cattle must be proportionably diminished, and the greatest part of the higher grounds would become absolutely useless; and it might be a question, in that case, whether the country upon the whole would support a greater population.

Notwithstanding, however, all these obstacles, there is a very considerable capacity of improvement in Norway, and of late years it has been called into action. I heard it remarked by a professor at Copenhagen, that the reason why the agriculture of Norway had advanced so slowly was, that there were no gentlemen farmers to set examples of improved cultivation, and break the routine of ignorance and prejudice in the conduct of farms, that had been handed down from father to son for successive ages. From what I saw of Norway I should say that this want is now in some degree supplied. Many intelligent merchants, and well-informed general officers, are at present engaged in farming. In the country round Christiania, very great improvements have taken place in the system of agriculture; and even in the neighbourhood of Drontheim the culture of artificial grasses has been introduced, which, in a country where so much winter feed is necessary for cattle, is a point of the highest importance. Almost everywhere the cultivation of potatoes has succeeded, and they are growing more and more into general use, though in the distant parts of the country they are not yet relished by the common people.

It has been more the custom of late years than formerly to divide farms; and as the vent for commodities in Norway is not perhaps sufficient to encourage the complete cultivation of large farms, this division of them has probably contributed to the improvement of the land. It seems indeed to be universally agreed, among those who are in a situation to be competent judges, that the agriculture of Norway in general has advanced considerably of late years; and the registers show that the population has followed with more than equal pace. On an average of ten years, from 1775 to 1784, the proportion of births to deaths was 141 to 100.[1] But this seems to have been rather too rapid an increase; as the following year, 1785, was a year of scarcity and sickness, in which the deaths considerably exceeded the births; and for four years afterwards, particularly in 1789, the excess of births was not great. But in five years from 1789 to 1794, the proportion of births and deaths was nearly 150 to 100.[2]

[1] Thaarupt's Statistik der Danischen Monarchie, vol. ii. p. 4.
[2] Id. table i. p. 4. In the Tableau Statistique des Etats Danois, since

Many of the most thinking and best informed persons express their apprehensions on this subject, and on the probable result of the new regulations respecting the enrolments of the army, and the apparent intention of the court of Denmark to encourage at all events the population. No very unfavourable season has occurred in Norway since 1785; but it is feared that, in the event of such a season, the most severe distress might be felt from the rapid increase that has of late taken place.

Norway is, I believe, almost the only country in Europe where a traveller will hear any apprehensions expressed of a redundant population, and where the danger to the happiness of the lower classes of people from this cause is in some degree seen and understood. This obviously arises from the smallness of the population altogether, and the consequent narrowness of the subject. If our attention were confined to one parish, and there were no power of emigrating from it, the most careless observer could not fail to remark that, if all married at twenty, it would be perfectly impossible for the farmers, however carefully they might improve their land, to find employment and food for those that would grow up; but when a great number of these parishes are added together in a populous kingdom, the largeness of the subject, and the power of moving from place to place, obscure and confuse our view. We lose sight of a truth which before appeared completely obvious; and in a most unaccountable manner, attribute to the aggregate quantity of land a power of supporting people beyond comparison greater than the sum of all its parts.

published, it appears that the whole number of births for the five years subsequent to 1794 was 138,799, of deaths 94,530, of marriages 34,313. These numbers give the proportion of births to deaths as 146 to 100, of births to marriages as 4 to 1, and of deaths to marriages as 275 to 100. The average proportion of yearly births is stated to be $\frac{1}{35}$, and of yearly deaths $\frac{1}{48}$ of the whole population. Vol. ii. ch. viii.

CHAPTER II

OF THE CHECKS TO POPULATION IN SWEDEN

SWEDEN is, in many respects, in a state similar to that of Norway. A very large proportion of its population is in the same manner employed in agriculture; and in most parts of the country the married labourers who work for the farmers, like the housemen of Norway, have a certain portion of land for their principal maintenance; while the young men and women that are unmarried live as servants in the farmers' families. This state of things, however, is not so complete and general as in Norway; and from this cause, added to the greater extent and population of the country, the superior size of the towns and the greater variety of employment, it has not occasioned in the same degree the prevalence of the preventive check to population; and consequently the positive check has operated with more force, or the mortality has been greater.

According to a paper published by M. Wargentin in the *Mémoires abrégés de l'Académie Royale des Sciences de Stockholm*,[1] the yearly average mortality in all Sweden, for nine years ending in 1663, was to the population as 1 to $34\frac{3}{4}$.[2] M. Wargentin furnished Dr. Price with a continuation of these tables; and an average of 21 years gives a result of 1 to $34\frac{3}{5}$, nearly the same.[3] This is undoubtedly a very great mortality, considering the large proportion of the population in Sweden which is employed in agriculture. It appears, from some calculations in Cantzlaer's account of Sweden, that the inhabitants of the towns are to the inhabitants of the country only as 1 to 13;[4] whereas in well-peopled countries the proportion is often as 1 to 3, or above.[5] The superior mortality of towns therefore cannot much affect the general proportion of deaths in Sweden.

The average mortality of villages according to Sussmilch is

[1] Vol. i. 4to. printed at Paris, 1772.
[2] Id. p. 27.
[3] Price's Observ. on Revers. Paym. vol. ii. p. 126, 4th edit.
[4] Mémoires pour servir à la connoissance des affaires politiques et économiques du Royaume de Suède, 4to. 1776, ch. vi. p. 187. This work is considered as very correct in its information, and is in great credit at Stockholm.
[5] Sussmilch's Göttliche Ordnung, vol. i. c. ii. sect. xxxiv. edit. 1798.

1 in 40.[1] In Prussia and Pomerania, which include a number of great and unhealthy towns, and where the inhabitants of the towns are to the inhabitants of the country as 1 to 4, the mortality is less than 1 in 37.[2] The mortality in Norway, as has been mentioned before, is 1 in 48, which is in a very extraordinary degree less than in Sweden, though the inhabitants of the towns in Norway bear a greater proportion to the inhabitants of the country than in Sweden.[3] The towns in Sweden are indeed larger and more unhealthy than in Norway; but there is no reason to think that the country is naturally more unfavourable to the duration of human life. The mountains of Norway are in general not habitable. The only peopled parts of the country are the valleys. Many of these valleys are deep and narrow clefts in the mountains; and the cultivated spots in the bottom, surrounded as they are by almost perpendicular cliffs of a prodigious height,[4] which intercept the rays of the sun for many hours, do not seem as if they could be so healthy as the more exposed and drier soil of Sweden.

It is difficult therefore entirely to account for the mortality of Sweden, without supposing that the habits of the people, and the continual cry of the government for an increase of subjects, tend to press the population too hard against the limits of subsistence, and consequently to produce diseases which are the necessary effect of poverty and bad nourishment; and this, from observation, appears to be really the case.

Sweden does not produce food sufficient for its population. Its annual want in the article of grain, according to a calculation made from the years 1768 and 1772, is 440,000 tuns.[5] This quantity, or near it, has in general been imported from foreign countries, besides pork, butter, and cheese to a considerable amount.[6]

The distillation of spirits in Sweden is supposed to consume above 400,000 tuns of grain; and when this distillation has been

[1] Sussmilch's Göttliche Ordnung, vol. i. c. ii. sect. xxxv. p. 91.

[2] Id. vol. iii. p. 60.

[3] Thaarup's Statistik der Danischen Monarchie, vol. ii. tab. ii. p. 5, 1765.

[4] Some of these valleys are strikingly picturesque. The principal road from Christiania to Drontheim leads for nearly 180 English miles through a continued valley of this kind, by the side of a very fine river, which in one part stretches out into the extensive lake Miosen. I am inclined to believe that there is not any river in all Europe, the course of which affords such a constant succession of beautiful and romantic scenery. It goes under different names in different parts. The verdure in the Norway valleys is peculiarly soft, the foliage of the trees luxuriant, and in summer no traces appear of a northern climate.

[5] Mémoires du Royaume de Suède, table xvii. p. 174. [6] Id. c. vi. p. 198.

prohibited by government, a variation in defect appears in the tables of importations;[1] but no great variations in excess are observable to supply the deficiencies in years of scanty harvests, which it is well known occur frequently. In years the most abundant, when the distillation has been free, it is asserted that 388,000 tuns have in general been imported.[2] It follows therefore that the Swedes consume all the produce of their best years, and nearly 400,000 more; and that in their worst years their consumption must be diminished by nearly the whole deficiency in their crops. The mass of the people appears to be too poor to purchase nearly the same quantity of corn at a very advanced price. There is no adequate encouragement therefore to corn merchants to import in great abundance; and the effect of a deficiency of one-fourth or one-third in the crops is, to oblige the labourer to content himself with nearly three-fourths or two-thirds of the corn which he used before, and to supply the rest by the use of any substitutes which Necessity, the mother of Invention, may suggest. I have said nearly; because it is difficult to suppose that the importations should not be something greater in years of scarcity than in common years, though no marked difference of this kind appears in the tables published by Cantzlaer. The greatest importation, according to these tables, was in the year 1768, when it amounted to 590,265 tuns of grain;[3] but even this greatest importation is only 150,000 tuns above the average wants of the country; and what is this, to supply a deficiency of one-fourth or one-third of a crop? The whole importation is indeed in this respect trifling.

The population of Sweden, at the time when Cantzlaer wrote, was about two millions and a half.[4] He allows four tuns of grain to a man.[5] Upon this supposition the annual wants of Sweden would be ten millions of tuns, and four or five hundred thousand would go but a little way in supplying a deficiency of two millions and a half or three millions; and if we take only the difference from the average importation it will appear that the assistance which the Swedes receive from importation in a year of scarcity is perfectly futile.

The consequence of this state of things is, that the population of Sweden is in a peculiar manner affected by every variation of the seasons; and we cannot be surprised at a very curious and

[1] Mémoires du Royaume de Suède, table xlii. p. 418, c. vi. p. 201. I did not find out exactly the measure of the Swedish tun. It is rather less than our sack, or half-quarter.
[2] Id. c. vi. p. 201.
[3] Id. p. 418.
[4] Id. p. 184.
[5] Id. p. 196.

instructive remark of M. Wargentin, that the registers of Sweden show that the births, marriages, and deaths increase and decrease according to the state of the harvests. From the nine years of which he had given tables, he instances the following:

		Marriages.	Births.	Deaths.
Barren years	1757	18,799	81,878	68,054
	1758	19,584	83,299	74,370
Abundant years	1759	23,210	85,579	62,662
	1760	23,383	90,635	60,083 [1]

Here it appears that in the year 1760 the births were to the deaths as 15 to 10; but in the year 1758 only as 11 to 10. By referring to the enumerations of the population in 1757 and 1760,[2] which M. Wargentin has given, it appears that the number of marriages in the year 1760 in proportion to the whole population was as 1 to 101; in the year 1757, only as 1 to about 124. The deaths in 1760 were to the whole population as 1 to 39, in 1757 as 1 to 32, and in 1758 as 1 to 31.

In some observations on the Swedish registers, M. Wargentin says that in the unhealthy years about 1 in 29 have died annually and in the healthy years 1 in 39; and that taking a middle term the average mortality might be considered as 1 in 36.[3] But this inference does not appear to be just, as a mean between 29 and 39 would give 34; and indeed the tables, which he has himself brought forward, contradict an average mortality of 1 in 36, and prove that it is about 1 in $34\frac{3}{4}$.

The proportion of yearly marriages to the whole population appears to be on an average nearly as 1 to 112, and to vary between the extremes of 1 to 101, and 1 to 124, according to the temporary prospect of a support for a family. Probably indeed it varies between much greater extremes, as the period from which these calculations are made is merely for nine years.

In another paper which M. Wargentin published in the same collection, he again remarks that in Sweden the years which are the most fruitful in produce, are the most fruitful in children.[4]

If accurate observations were made in other countries, it is highly probable that differences of the same kind would appear, though not to the same extent.[5] With regard to Sweden, they

[1] Mémoires Abrégés de l'Académie de Stockholm, p. 29.
[2] Id. p. 21, 22. [3] Id. p. 29. [4] Id. p. 31.
[5] This has been confirmed with regard to England by the abstracts of parish registers which have lately been published. The years 1795 and 1800 are marked by a diminution of marriages and births, and an increase of deaths.

clearly prove that its population has a very strong tendency to increase; and that it is not only always ready to follow with the greatest alertness any average increase in the means of subsistence, but that it makes a start forwards at every temporary and occasional increase of food; by which means it is continually going beyond the average increase, and is repressed by the periodical returns of severe want, and the diseases arising from it.

Yet notwithstanding this constant and striking tendency to overflowing numbers, strange to say! the government and the political economists of Sweden are continually calling out for population! population! Cantzlaer observes that the government, not having the power of inducing strangers to settle in the country, or of augmenting at pleasure the number of births, has occupied itself since 1748 in every measure which appeared proper to increase the population of the country.[1] But suppose that the government really possessed the power of inducing strangers to settle, or of increasing the number of births at pleasure, what would be the consequence? If the strangers were not such as to introduce a better system of agriculture they would either be starved themselves, or cause more of the Swedes to be starved; and if the yearly number of births were considerably increased, it appears to me perfectly clear, from the tables of M. Wargentin, that the principal effect would be merely an increase of mortality. The actual population might perhaps even be diminished by it; as, when epidemics have once been generated by bad nourishment and crowded houses, they do not always stop when they have taken off the redundant population, but take off with it a part, and sometimes a very considerable part, of that which the country might be able properly to support.

In all very northern climates, in which the principal business of agriculture must necessarily be compressed into the small space of a few summer months, it will almost inevitably happen that during this period a want of hands is felt; but this temporary want should be carefully distinguished from a real and effectual demand for labour, which includes the power of giving employment and support through the whole year, and not merely for two or three months. The population of Sweden in the natural course of its increase will always be ready fully to answer this effectual demand; and a supply beyond it, whether from strangers or an additional number of births, can only be productive of misery.

[1] Mémoires du Royaume de Suède, c. vi. p. 188.

It is asserted by Swedish authors that a given number of men and of days produces in Sweden only a third part of what is produced by the same number of each in some other countries;[1] and heavy accusations are in consequence brought against the national industry. Of the general grounds for such accusations a stranger cannot be a competent judge; but in the present instance it appears to me that more ought to be attributed to the climate and soil than to an actual want of industry in the natives. For a large portion of the year their exertions are necessarily cramped by the severity of the climate; and during the time when they are able to engage in agricultural operations, the natural indifference of the soil and the extent of surface required for a given produce, inevitably employ a greater proportional quantity of labour. It is well known in England that a farm of large extent, consisting of a poor soil, is worked at a much greater expense for the same produce than a small one of rich land. The natural poverty of the soil in Sweden, generally speaking, cannot be denied.[2]

In a journey up the western side of the country, and afterwards in crossing it from Norway to Stockholm, and thence up the eastern coast to the passage over to Finland, I confess that I saw fewer marks of a want of national industry than I should have expected. As far as I could judge, I very seldom saw any land uncultivated which would have been cultivated in England; and I certainly saw many spots of land in tillage which never would have been touched with a plough here. These were lands in which every five or ten yards there were large stones or rocks, round which the plough must necessarily be turned, or be lifted over them; and the one or the other is generally done according to their size. The plough is very light, and drawn by one horse; and in ploughing among the stumps of the trees when they are low, the general practice is to lift it over them. The man who holds the plough does this very nimbly, with little or no stop to the horse.

Of the value of those lands for tillage, which are at present covered with immense forests, I could be no judge; but both the Swedes and the Norwegians are accused of clearing these woods away too precipitately, and without previously considering what is likely to be the real value of the land when cleared. The consequence is, that for the sake of one good crop of rye, which

[1] Mémoires du Royaume de Suède, ch. vi. p. 191.

[2] Cantzlaer mentions the returns from land *effectivement ensemencé* as only three grains for one, ch. vi. p. 196.

may always be obtained from the manure afforded by the ashes of the burnt trees, much growing timber is sometimes spoiled, and the land perhaps afterwards becomes almost entirely useless. After the crop of rye has been obtained, the common practice is to turn cattle in upon the grass which may accidentally grow up. If the land be naturally good, the feeding of the cattle prevents fresh firs from rising; but if it be bad, the cattle of course cannot remain long in it, and the seeds, with which every wind is surcharged, sow the ground again thickly with firs.

On observing many spots of this kind both in Norway and Sweden, I could not help being struck with the idea that, though for other reasons it was very little probable, such appearances certainly made it seem possible that these countries might have been better peopled formerly than at present; and that lands, which are now covered with forests, might have produced corn a thousand years ago. Wars, plagues, or that greater depopulator than either, a tyrannical government, might have suddenly destroyed or expelled the greatest part of the inhabitants; and a neglect of the land for twenty or thirty years in Norway or Sweden would produce a very strange difference in the face of the country. But this is merely an idea which I could not help mentioning, but which the reader already knows has not had weight enough with me to make me suppose the fact in any degree probable.

To return to the agriculture of Sweden. Independently of any deficiency in the national industry, there are certainly some circumstances in the political regulations of the country which tend to impede the natural progress of its cultivation. There are still some burdensome Corvées remaining, which the possessors of certain lands are obliged to perform for the domains of the crown.[1] The posting of the country is undoubtedly very cheap and convenient to the traveller; but it is conducted in a manner to occasion a great waste of labour to the farmer, both in men and horses. It is calculated by the Swedish economists that the labour which would be saved by the abolition of this system alone, would produce annually 300,000 tuns of grain.[2] The very great distance of the markets in Sweden, and the very incomplete division of labour, which is almost a necessary consequence of it, occasion also a great waste of time and exertion. And if there be no marked want of diligence and activity among the Swedish peasants, there is certainly a want of knowledge as

[1] Mémoires du Royaume de Suède, ch. vi. p. 202.
[2] Id. p. 204.

to the best modes of regulating the rotation of their crops, and of manuring and improving their lands.[1]

If the government were employed in removing these impediments, and in endeavours to encourage and direct the industry of the farmers, and to circulate the best information on agricultural subjects, it would do much more for the population of the country than by the establishment of five hundred foundling hospitals.

According to Cantzlaer, the principal measures in which the government had been engaged for the encouragement of the population were the establishment of colleges of medicine and of lying-in and foundling hospitals.[2] The establishment of colleges of medicine for the cure of the poor gratis may, in many cases, be extremely beneficial, and was so probably in the particular circumstances of Sweden; but the example of the hospitals of France, which have the same object, may create a doubt whether even such establishments are universally to be recommended. Lying-in hospitals, as far as they have an effect, are probably rather prejudicial than otherwise; as, according to the principle on which they are generally conducted, their tendency is certainly to encourage vice. Foundling hospitals, whether they attain their professed and immediate object or not, are in every view hurtful to the state; but the mode in which they operate I shall have occasion to discuss more particularly in another chapter.

The Swedish government, however, has not been exclusively employed in measures of this nature. By an edict in 1776, the commerce of grain was rendered completely free throughout the whole interior of the country; and with regard to the province of Scania, which grows more than its consumption, exportation free of every duty was allowed.[3] Till this period the agriculture of the southern provinces had been checked by the want of vent for their grain, on account of the difficulty of transport and the absolute prohibition of selling it to foreigners at any price. The northern provinces are still under some difficulties in this respect; though, as they never grow a quantity sufficient for their consumption, these difficulties are not so much felt.[4] It may be observed, however, in general, that there is no check more fatal to improving cultivation than any difficulty in the vent of its produce, which prevents the farmer from being able to obtain in

[1] Mémoires du Royaume de Suède, ch. vi.
[2] Id. ch. vi. p. 188. [3] Id. p. 204. [4] Id. ibid.

good years a price for his corn not much below the general average.

But what perhaps has contributed more than any other cause to the increasing population of Sweden is the abolition of a law in 1748, which limited the number of persons to each henman or farm.[1] The object of this law appears to have been to force the children of the proprietors to undertake the clearing and cultivation of fresh lands, by which it was thought that the whole country would be sooner improved. But it appears from experience that these children, being without sufficient funds for such undertakings, were obliged to seek their fortune in some other way; and great numbers, in consequence, are said to have emigrated. A father may now, however, not only divide his landed property into as many shares as he thinks proper, but these divisions are particularly recommended by the government; and considering the immense size of the Swedish henmans, and the impossibility of their being cultivated completely by one family, such divisions must in every point of view be highly useful.

The population of Sweden in 1751 was 2,229,661.[2] In 1799, according to an account which I received in Stockholm from Professor Nicander, the successor to M. Wargentin, it was 3,043,731. This is a very considerable addition to the permanent population of the country, which has followed a proportional increase in the produce of the soil, as the imports of corn are not greater than they were formerly, and there is no reason to think that the condition of the people is, on an average, worse.

This increase, however, has not gone forwards without periodical checks, which, if they have not for a time entirely stopped its progress, have always retarded the rate of it. How often these checks have recurred during the last fifty years, I am not furnished with sufficient data to be able to say; but I can mention some of them. From the paper of M. Wargentin,[3] already quoted in this chapter, it appears that the years 1757 and 1758 were barren, and comparatively mortal years. If we were to judge from the increased importation of 1768,[4] this would also appear to be an unproductive year. According to the additional tables with which M. Wargentin furnished Dr. Price, the years 1771, 1772, and 1773 were particularly mortal.[5] The

[1] Mémoires du Royaume de Suède, ch. vi. p. 177.
[2] Id. p. 184.
[3] Mémoires de l'Académie de Stockholm, p. 29.
[4] Mémoires du Royaume de Suède, table xlii.
[5] Price's Observ. on Revers. Pay. vol. ii. p. 125.

year 1789 must have been very highly so, as in the accounts which I received from Professor Nicander, this year alone materially affected the average proportion of births to deaths for the twenty years ending in 1795. This proportion, including the year 1789, was 100 to 77; but abstracting it, was 100 to 75; which is a great difference for one year to make in an average of twenty. To conclude the catalogue, the year 1799, when I was in Sweden, must have been a very fatal one. In the provinces bordering on Norway, the peasants called it the worst that they had ever remembered. The cattle had all suffered extremely during the winter from the drought of the preceding year; and in July, about a month before the harvest, a considerable portion of the people was living upon bread made of the inner part of the fir and of dried sorrel, absolutely without any mixture of meal to make it more palatable and nourishing. The sallow looks and melancholy countenances of the peasants betrayed the unwholesomeness of their nourishment. Many had died; but the full effects of such a diet had not then been felt. They would probably appear afterwards in the form of some epidemic sickness.

The patience with which the lower classes of people in Sweden bear these severe pressures is perfectly astonishing, and can only arise from their being left entirely to their own resources, and from the belief that they are submitting to the great law of necessity, and not to the caprices of their rulers. Most of the married labourers, as has before been observed, cultivate a small portion of land; and when, from an unfavourable season, their crops fail, or their cattle die, they see the cause of their want, and bear it as the visitation of Providence. Every man will submit with becoming patience to evils which he believes to arise from the general laws of nature; but when the vanity and mistaken benevolence of the government and the higher classes of society have, by a perpetual interference with the concerns of the lower classes, endeavoured to persuade them that all the good which they enjoy is conferred upon them by their rulers and rich benefactors, it is very natural that they should attribute all the evil which they suffer to the same sources; and patience under such circumstances cannot reasonably be expected. Though to avoid still greater evils, we may be allowed to repress this impatience by force, if it show itself in overt acts; yet the impatience itself appears to be clearly justified in this case: and those are in a great degree answerable for its consequences whose conduct has tended evidently to encourage it.

Though the Swedes had supported the severe dearth of 1799 with extraordinary resignation; yet afterwards, on an edict of the government to prohibit the distillation of spirits, it is said that there were considerable commotions in the country. The measure itself was certainly calculated to benefit the people; and the manner in which it was received affords a curious proof of the different temper with which people bear an evil arising from the laws of nature or a privation caused by the edicts of a government.

The sickly periods in Sweden, which have retarded the rate of its increase in population, appear in general to have arisen from the unwholesome nourishment occasioned by severe want. And this want has been caused by unfavourable seasons, falling upon a country which was without any reserved store, either in its general exports or in the liberal division of food to the labourer in common years; and which was therefore peopled fully up to its produce before the occurrence of the scanty harvest. Such a state of things is a clear proof that if, as some of the Swedish economists assert, their country ought to have a population of nine or ten millions,[1] they have nothing further to do than to make it produce food sufficient for such a number; and they may rest perfectly assured that they will not want mouths to eat it, without the assistance of lying-in and foundling hospitals.

Notwithstanding the mortal year of 1789, it appeared from the accounts which I received from Professor Nicander that the general healthiness of the country had increased. The average mortality for the twenty years ending 1795 was 1 in 37, instead of 1 in less than 35, which had been the average of the preceding twenty years. As the rate of increase had not been accelerated in the twenty years ending in 1795, the diminished mortality must have been occasioned by the increased operation of the preventive check. Another calculation which I received from the professor seemed to confirm this supposition. According to M. Wargentin, as quoted by Sussmilch,[2] 5 standing marriages produced yearly 1 child; but in the latter period the proportion of standing marriages to annual births was as $5\frac{1}{10}$, and subtracting illegitimate children, as $5\frac{3}{10}$ to 1: a proof that in the latter period the marriages had not been quite so early and so prolific.

[1] Mémoires du Royaume de Suède, ch. vi. p. 196.
[2] Göttliche Ordnung, vol. i. c. vi. s. 120, p. 231.

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From subsequent accounts it appears that the healthiness of Sweden has continued to increase, from which we may fairly infer that the condition of the mass of the people has been improving.

In all Sweden and Finland during the five years ending with 1805, the mean number of the living at all ages was, males 1,564,611; females 1,683,457; both, 3,248,068. Annual average deaths of males 40,147; of females 39,266; that is, the annual mortality of males was 1 of 38.97; of females 1 of 42.87; mean, 1 of 40.92.[1]

The annual average births of males were 55,119; of females 52,762; both, 107,882; that is, the proportion of male births to the male population was 1 of 28.38; of female births to the female population 1 of 31.92; mean, 1 of 30.15.

From a valuable table formed by Mr. Milne on these and other data, it appears that, according to the law of mortality which prevailed in Sweden during the five years ending with 1805, the expectation of life at birth would be for males 37.820, for females 41.019; both, 39.385: and that half of the males would live to very nearly 43 years of age, half of the females nearly to 48 years of age, and half of all the births taken together to 45 years.

A proportion of births as 1 to 30.15, and of deaths as 1 to 40.92, would give a yearly excess of births to the population as 1 to 114.5, which, if continued, would (according to Table II. at the end of Ch. xi. Bk. ii.) give a rate of increase such as to double the population in less than 80 years.

In the Revue Encyclopédique for March 1825, a short account is given of the result of a commission to inquire into the progress of population in Sweden since 1748, from which it appears that Sweden properly so called, exclusive of Finland, contained then 1,736,483 inhabitants; in 1773, 1,958,797; in 1798, 2,352,298; and in 1823, 2,687,457. In 1823, there had been 56,054 deaths, and 98,259 births. The excess of the births in that year alone was therefore 42,205, and it is stated that, supposing the same excess in the next year, 1824, the average annual excess of the last fifteen years would be 23,333. This would be in the propor-

[1] Transactions of the Royal Academy of Sciences at Stockholm for the year 1809, and Supplement to the Encyclopædia Britannica, article Mortality, by Mr. Milne, Actuary to the Sun Life Assurance Society. The period of five years here noticed was free from any remarkable epidemics, and vaccination had commenced in 1804.

tion of 1 to 108 of the average population, an excess which, if continued, would double the population in about 75 years. According to the foregoing numbers, the proportion of the births to the population was in 1823 as 1 to 27.3, of the deaths as 1 to 47.9. The healthiness of the country, therefore, and the rate of its increase in population, has continued to advance since 1805. This increase is attributed to the progress of agriculture and industry, and the practice of vaccination.

The gradual diminution of mortality since the middle of the last century is very striking.

CHAPTER III

OF THE CHECKS TO POPULATION IN RUSSIA

THE lists of births, deaths, and marriages in Russia present such extraordinary results that it is impossible not to receive them with a considerable degree of suspicion; at the same time the regular manner in which they have been collected, and their agreement with each other in different years, entitle them to attention.

In a paper presented in 1768, by B. F. Herman, to the academy of Petersburg, and published in the *Nova Acta Academiæ*, tom. iv., a comparison is made of the births, deaths, and marriages in the different provinces and towns of the empire, and the following proportions are given:

In Petersburg the births are to the burials as .	13 to 10
In the government of Moscow . . .	21 — 10
District of Moscow excepting the town . .	21 — 10
Tver	26 — 10
Novogorod	20 — 10
Pskovsk	22 — 10
Resan	20 — 10
Veronesch	29 — 10
Archbishopric of Vologda	23 — 10
Kostroma	20 — 10
Archangel	13 — 10
Tobolsk	21 — 10
Town of Tobolsk	13 — 10
Reval	11 — 10
Vologda	12 — 10

Some of these proportions it will be observed are extraordinarily high. In Veronesch, for instance, the births are to the deaths nearly as 3 to 1, which is as great a proportion, I believe, as ever was known in America. The average result however of the proportions has been, in some degree, confirmed by subsequent observations. Mr. Tooke, in his View of the Russian Empire, makes the general proportion of births to burials

throughout the whole country as 225 to 100,[1] which is $2\frac{1}{4}$ to 1; and this proportion is taken from the list of 1793.[2]

From the number of yearly marriages, and yearly births, M. Herman draws the following conclusions:

	Children.
In Petersburg one marriage yields	4
In the government of Moscow about	3
Tver	3
Novogorod	3
Pskovsk	3
Resan	3
Veronesch	4
Vologda	4
Kostroma	3
Archangel	4
Reval	4
Government of Tobolsk	4
Town of Tobolsk, from 1768 to 1778	3
„ „ from 1779 to 1783	5
„ „ in 1783	6

M. Herman observes that the fruitfulness of marriages in Russia does not exceed that of other countries, though the mortality is much less, as appears from the following proportions drawn from a rough calculation of the number of the inhabitants in each government:

	Dies annually.
In Petersburg	1 in 28
In the government of Moscow	1 — 32
District of Moscow	1 — 74
Tver	1 — 75
Novogorod	1 — $68\frac{6}{7}$
Pskovsk	1 — $70\frac{4}{5}$
Resan	1 — 50
Verònesch	1 — 79
Archbishopric of Vologda	1 — 65
Kostroma	1 — 59
Archangel	1 — $28\frac{3}{5}$
Reval	1 — 29
Government of Tobolsk	1 — 44
Town of Tobolsk	1 — 32
„ „ in 1783	1 — $22\frac{1}{4}$

[1] Vol. ii. b. iii. p. 162.

[2] Id. p. 145.

It may be concluded, M. Herman says, that in the greatest number of the Russian provinces the yearly mortality is 1 in 60.[1]

This average number is so high, and some of the proportions in the particular provinces are so extraordinary, that it is impossible to believe them accurate. They have been nearly confirmed, however, by subsequent lists, which, according to Mr. Tooke, make the general mortality in all Russia 1 in 58.[2] But Mr. Tooke himself seems to doubt the accuracy of this particular department of the registers; and I have since heard, from good authority, that there is reason to believe that the omissions in the burials are in all the provinces much greater than the omissions in the births; and consequently that the very great excess of births, and very small mortality, are more apparent than real. It is supposed that many children, particularly in the Ukraine, are privately interred by their fathers without information to the priest. The numerous and repeated levies of recruits take off great numbers, whose deaths are not recorded. From the frequent emigrations of whole families to different parts of the empire and the transportation of malefactors to Siberia, great numbers necessarily die on journeys or in parts where no regular lists are kept; and some omissions are attributed to the neglect of the parish priests, who have an interest in recording the births but not the deaths.

To these reasons I should add that the population of each province is probably estimated by the number of boors belonging to each estate in it; but it is well known that a great part of them have leave to reside in the towns. Their births therefore appear in the province, but their deaths do not. The apparent mortality of the towns is not proportionably increased by this emigration, because it is estimated according to actual enumeration. The bills of mortality in the towns express correctly the numbers dying out of a certain number known to be actually present in these towns; but the bills of mortality in the provinces, purporting to express the numbers dying out of the estimated population of the province, do really only express the numbers dying out of a much smaller population, because a considerable part of the estimated population is absent.

In Petersburg, it appeared by an enumeration in 1784, that the number of males was 126,827, and of females only 65,619.[3] The proportion of males was therefore very nearly double, arising

[1] Nova Acta Academiæ, tom. iv.
[2] View of the Russian Empire, vol. ii. b. iii. p. 148.
[3] Mémoire par W. L. Krafft, Nova Acta Academiæ, tom. iv.

from the numbers who came to the town to earn their capitation tax, leaving their families in the country, and from the custom among the nobles of retaining a prodigious number of their boors as household servants in Petersburg and Moscow.

The number of births in proportion to the whole population in Russia is not different from a common average in other countries, being about 1 in 26.[1]

According to the paper of M. Herman already quoted, the proportion of boys dying within the first year is at Petersburg $\frac{1}{5}$, in the government of Tobolsk $\frac{1}{10}$, in the town of Tobolsk $\frac{1}{3}$, in the Archbishopric of Vologda $\frac{1}{14}$, in Novogorod $\frac{1}{31}$, in Veronesch $\frac{1}{24}$, in Archangel $\frac{1}{8}$. The very small mortality of infants in some of these provinces, particularly as the calculation does not seem to be liable to much error, makes the smallness of the general mortality more credible. In Sweden, throughout the whole country, the proportion of infants which die within the first year is $\frac{1}{6}$ or more.[2]

The proportion of yearly marriages in Russia to the whole population is, according to M. Herman, in the towns about 1 in 100, and in the provinces about 1 in 70 or 80. According to Mr. Tooke, in the fifteen governments of which he had lists, the proportion was 1 in 92.[3]

This is not very different from other countries. In Petersburg indeed the proportion was 1 in 140;[4] but this is clearly accounted for by what has already been said of the extraordinary number of the males in comparison of the females.

The registers for the city of Petersburg are supposed to be such as can be entirely depended upon; and these tend to prove the general salubrity of the climate. But there is one fact recorded in them which is directly contrary to what has been observed in all other countries. This is a much greater mortality of female children than of male. In the period from 1781 to 1785, of 1000 boys born 147 only died within the first year, but of the same number of girls 310.[5] The proportion is as 10 to 21, which is inconceivable, and must indeed have been in some measure accidental, as in the preceding periods the proportion was only as 10 to 14; but even this is very extraordinary, as it has been generally remarked, that in every stage of life, except during the period of child-bearing, the mortality among females

[1] Tooke's View of the Russ. Emp. vol. ii. b. iii. p. 147.
[2] Mémoires Abrégés de l'Académie de Stockholm, p. 28.
[3] View of Russ. Emp. vol. ii. b. iii. p. 146.
[4] Mémoire par W. L. Krafft, Nova Acta Academiæ, tom. iv. [5] Ibid.

is less than among males. The climate of Sweden does not appear to be very different from that of Russia; and M. Wargentin observes, with respect to the Swedish tables, that it appears from them that the smaller mortality of females is not merely owing to a more regular and less laborious life, but is a natural law, which operates constantly from infancy to old age.[1]

According to M. Krafft,[2] the half of all that are born at Petersburg live to 25; which shows a degree of healthiness in early life very unusual for so large a town; but after twenty, a mortality much greater than in any other town in Europe takes place, which is justly attributed to the immoderate use of brandy.[3] The mortality between 10 and 15 is so small that only 1 in 47 males and 1 in 29 females die during this period. From 20 to 25 the mortality is so great that 1 in 9 males and 1 in 13 females die. The tables show that this extraordinary mortality is occasioned principally by pleurisies, high fevers, and consumptions. Pleurisies destroy $\frac{1}{4}$, high fevers $\frac{1}{8}$, and consumptions $\frac{1}{8}$ of the whole population. The three together take off $\frac{5}{7}$ of all that die.

The general mortality during the period from 1781 to 1785 was, according to M. Krafft, 1 in 37. In a former period it had been 1 in 35, and in a subsequent period, when epidemic diseases prevailed, it was one in 29.[4] This average mortality is small for a large town; but there is reason to think, from a passage in M. Krafft's memoir,[5] that the deaths in the hospitals, the prisons, and in the *Maison des Enfans trouvés*, are either entirely omitted, or not given with correctness; and undoubtedly the insertion of these deaths might make a great difference in the apparent healthiness of the town.

In the *Maison des Enfans trouvés* alone the mortality is prodigious. No regular lists are published, and verbal communications are always liable to some uncertainty. I cannot therefore rely upon the information which I collected on the subject; but from the most careful inquiries which I could make of the attendants at the house in Petersburg, I understood that 100 a month was the common average. In the preceding winter, which was the winter of 1788, it had not been uncommon to bury 18 a day. The average number received in the day is about 10; and though they are all sent into the country to be nursed three days after they have been in the house, yet, as many of them are

[1] Mémoires Abrégés de l'Académie de Stockholm, p. 28.
[2] Nova Acta Academiæ, tom. iv.
[3] Tooke's View of the Russian Empire, vol. ii. b. iii. p. 155.
[4] Id. p. 151. [5] Id. note, p. 150.

brought in a dying state, the mortality must necessarily be great. The number said to be received appears, indeed, almost incredible; but from what I saw myself, I should be inclined to believe that both this and the mortality before mentioned might not be far from the truth. I was at the house about noon, and four children had been just received, one of which was evidently dying, and another did not seem as if it would long survive.

A part of the house is destined to the purpose of a lying-in hospital, where every woman that comes is received, and no questions are asked. The children thus born are brought up by nurses in the house, and are not sent into the country like the others. A mother, if she choose it, may perform the office of nurse to her own child in the house, but is not permitted to take it away with her. A child brought to the house may at any time be reclaimed by its parents, if they can prove themselves able to support it; and all the children are marked and numbered on being received, that they may be known and produced to the parents when required, who, if they cannot reclaim them, are permitted to visit them.

The country nurses receive only two roubles a month, which, as the current paper rouble is seldom worth more than half a crown, is only about fifteenpence a week; yet the general expenses are said to be 100,000 roubles a month. The regular revenues belonging to the institution are not nearly equal to this sum; but the government takes on itself the management of the whole affair, and consequently bears all the additional expenses. As children are received without any limit, it is absolutely necessary that the expenses should also be unlimited. It is evident that the most dreadful evils must result from an unlimited reception of children, and only a limited fund to support them. Such institutions, therefore, if managed properly, that is, if the extraordinary mortality do not prevent the rapid accumulation of expense, cannot exist long except under the protection of a very rich government; and even under such protection the period of their failure cannot be very distant.

At six or seven years old the children who have been sent into the country return to the house, where they are taught all sorts of trades and manual operations. The common hours of working are from 6 to 12, and from 2 till 4. The girls leave the house at 18, and the boys at 20 or 21. When the house is too full, some of those which have been sent into the country are not brought back.

The principal mortality, of course, takes place among the

infants who are just received, and the children which are brought up in the house; but there is a considerable mortality amongst those who are returned from the country, and are in the firmest stages of life. I was in some degree surprised at hearing this, after having been particularly struck with the extraordinary degree of neatness, cleanliness, and sweetness which appeared to prevail in every department. The house itself had been a palace, and all the rooms were large, airy, and even elegant. I was present while 180 boys were dining. They were all dressed very neatly; the tablecloth was clean, and each had a separate napkin to himself. The provisions appeared to be extremely good, and there was not the smallest disagreeable smell in the room. In the dormitories there was a separate bed for each child; the bedsteads were of iron without tester or curtains, and the coverlids and sheets particularly clean.

This degree of neatness, almost inconceivable in a large institution, was to be attributed principally to the present Empress Dowager, who interested herself in all the details of the management, and, when at Petersburg, seldom passed a week without inspecting them in person. The mortality which takes place in spite of all these attentions is a clear proof that the constitution in early youth cannot support confinement and work for eight hours in the day. The children had all rather a pale and sickly countenance, and if a judgment had been formed of the national beauty from the girls and boys in this establishment, it would have been most unfavourable.

It is evident that, if the deaths belonging to this institution be omitted, the bills of mortality for Petersburg cannot give a representation in any degree near the truth of the real state of the city with respect to healthiness. At the same time it should be recollected, that some of the observations which attest its healthiness, such as the number dying in a thousand, etc., are not influenced by this circumstance; unless indeed we say, what is perhaps true, that nearly all those who would find any difficulty in rearing their children send them to the foundling hospital; and the mortality among the children of those who are in easy circumstances, and live in comfortable houses and airy situations, will of course be much less than a general average taken from all that are born.

The *Maison des Enfans trouvés* at Moscow is conducted exactly upon the same principle as that at Petersburg; and Mr. Tooke gives an account of the surprising loss of children which it had sustained in twenty years, from the time of its first establishment

to the year 1786. On this occasion he observes that if we knew precisely the number of those who died immediately after reception, or who brought in with them the germ of dissolution, a small part only of the mortality would probably appear to be fairly attributable to the foundling hospital; as none would be so unreasonable as to lay the loss of these certain victims to death to the account of a philanthropic institution, which enriches the country from year to year with an ever-increasing number of healthy, active, and industrious burghers.[1]

It appears to me, however, that the greatest part of this premature mortality is clearly to be attributed to these institutions, miscalled philanthropic. If any reliance can be placed on the accounts which are given of the infant mortality in the Russian towns and provinces, it would appear to be unusually small. The greatness of it, therefore, at the foundling hospitals, may justly be laid to the account of institutions which encourage a mother to desert her child, at the very time when of all others it stands most in need of her fostering care. The frail tenure by which an infant holds its life will not allow of a remitted attention, even for a few hours.

The surprising mortality which takes place at these two foundling hospitals of Petersburg and Moscow, which are managed in the best possible manner (as all who have seen them with one consent assert), appears to me incontrovertibly to prove, that the nature of these institutions is not calculated to answer the immediate end that they have in view; which I conceive to be the preservation of a certain number of citizens to the state who might otherwise perhaps perish from poverty or false shame. It is not to be doubted that if the children received into these hospitals had been left to the management of their parents, taking the chance of all the difficulties in which they might be involved, a much greater proportion of them would have reached the age of manhood, and have become useful members of the state.

When we look a little deeper into this subject, it will appear that these institutions not only fail in their immediate object, but by encouraging in the most marked manner habits of licentiousness, discourage marriage, and thus weaken the main spring of population. All the well-informed men with whom I conversed on this subject at Petersburg, agreed invariably that the institution had produced this effect in a surprising degree. To have a child was considered as one of the most trifling faults which a

[1] View of the Russian Empire, vol. ii. b. iii. p. 201.

girl could commit. An English merchant at Petersburg told me that a Russian girl living in his family, under a mistress who was considered as very strict, had sent six children to the foundling hospital without the loss of her place.

It should be observed, however, that generally speaking six children are not common in this kind of intercourse. Where habits of licentiousness prevail, the births are never in the same proportion to the number of people as in the married state; and therefore the discouragement to marriage, arising from this licentiousness, and the diminished number of births, which is the consequence of it, will much more than counterbalance any encouragement to marriage from the prospect held out to parents of disposing of the children which they cannot support.

Considering the extraordinary mortality which occurs in these institutions, and the habits of licentiousness which they have an evident tendency to create, it may perhaps be truly said that, if a person wished to check population, and were not solicitous about the means, he could not propose a more effectual measure than the establishment of a sufficient number of foundling hospitals, unlimited as to their reception of children. And with regard to the moral feelings of a nation, it is difficult to conceive that they must not be sensibly impaired by encouraging mothers to desert their offspring, and endeavouring to teach them that their love for their new-born infants is a prejudice which it is the interest of their country to eradicate. An occasional child-murder from false shame is saved at a very high price if it can only be done by the sacrifice of some of the best and most useful feelings of the human heart in a great part of the nation.

On the supposition that foundling hospitals attained their proposed end, the state of slavery in Russia would perhaps render them more justifiable in that country than in any other; because every child brought up at the foundling hospitals becomes a free citizen, and in this capacity is likely to be more useful to the state than if it had merely increased the number of slaves belonging to an individual proprietor. But in countries not similarly circumstanced, the most complete success in institutions of this kind would be a glaring injustice to other parts of the society. The true encouragement to marriage is the high price of labour, and an increase of employments which require to be supplied with proper hands; but if the principal part of these employments, apprenticeships, etc., be filled up by foundlings, the demand for labour among the legitimate part of the society must

be proportionally diminished, the difficulty of supporting a family increased, and the best encouragement to marriage removed.

Russia has great natural resources. Its produce is, in its present state, above its consumption; and it wants nothing but greater freedom of industrious exertion, and an adequate vent for its commodities in the interior parts of the country, to occasion an increase of population astonishingly rapid. The principal obstacle to this is the vassalage, or rather slavery, of the peasants, and the ignorance and indolence which almost necessarily accompany such a state. The fortune of a Russian nobleman is measured by the number of boors that he possesses, which in general are saleable like cattle, and not *adscripti glebæ*. His revenue arises from a capitation tax on all the males. When the boors upon an estate are increasing, new divisions of land are made at certain intervals; and either more is taken into cultivation, or the old shares are subdivided. Each family is awarded such a portion of land as it can properly cultivate, and will enable it to pay the tax. It is evidently the interest of the boor not to improve his lands much, and appear to get considerably more than is necessary to support his family and pay the poll-tax; because the natural consequence will be, that in the next division which takes place, the farm which he before possessed will be considered as capable of supporting two families, and he will be deprived of the half of it. The indolent cultivation that such a state of things must produce is easily conceivable. When a boor is deprived of much of the land which he had before used, he makes complaints of inability to pay his tax, and demands permission for himself or his sons to go and earn it in the towns. This permission is in general eagerly sought after, and is granted without much difficulty by the Seigneurs, in consideration of a small increase of the poll-tax. The consequence is, that the lands in the country are left half cultivated, and the genuine spring of population impaired in its source.

A Russian nobleman at Petersburg, of whom I asked some questions respecting the management of his estate, told me that he never troubled himself to inquire whether it was properly cultivated or not, which he seemed to consider as a matter in which he was not in the smallest degree concerned. *Cela m'est égal*, says he, *cela me fait ni bien ni mal*. He gave his boors permission to earn their tax how and where they liked, and as long as he received it he was satisfied. But it is evident that by this kind of conduct he sacrificed the future population of his estate,

and the consequent future increase of his revenues, to considerations of indolence and present convenience.

It is certain, however, that of late years many noblemen have attended more to the improvement and population of their estates, instigated principally by the precepts and example of the empress Catharine, who made the greatest exertions to advance the cultivation of the country. Her immense importations of German settlers not only contributed to people her state with free citizens instead of slaves, but, what was perhaps of still more importance, to set an example of industry, and of modes of directing that industry, totally unknown to the Russian peasants.

These exertions have been attended, upon the whole, with great success; and it is not to be doubted that, during the reign of the late empress and since, a very considerable increase of cultivation and of population has been going forward in almost every part of the Russian empire.

In the year 1763, an enumeration of the people, estimated by the poll-tax, gave a population of 14,726,696; and the same kind of enumeration in 1783 gave a population of 25,677,000, which, if correct, shows a very extraordinary increase; but it is supposed that the enumeration in 1783 was more correct and complete than the one in 1763. Including the provinces not subject to the poll-tax, the general calculation for 1763 was 20,000,000, and for 1796, 36,000,000.[1]

In a subsequent edition of Mr. Tooke's View of the Russian Empire, a table of the births, deaths, and marriages in the Greek Church is given for the year 1799, taken from a respectable German periodical publication, and faithfully extracted from the general returns received by the synod. It contains all the eparchies except Bruzlaw, which, from the peculiar difficulties attending a correct list of mortality in that eparchy, could not be inserted. The general results are:

	Males.	Females.	Totals.
Births	531,015	460,900	991,915
Deaths	275,582	264,807	540,389
	Marriages	257,513	
Overplus of births	Males 255,432	Females 196,093	451,525

To estimate the population Mr. Tooke multiplies the deaths by

[1] Tooke's View of the Russian Empire, vol. ii. book. iii. sect. i. p. 126 et seq.

58. But as this table has the appearance of being more correct than those which preceded it, and as the proportion of deaths compared with the births is greater in this table than in the others, it is probable that 58 is too great a multiplier. It may be observed that in this table the births are to the deaths nearly as 183 to 100, the births to marriages as 385 to 100, and the deaths to the marriages as 210 to 100.

These are all more probable proportions than the results of the former tables.

1825

The population of Russia, including the wandering tribes and the acquired territories, was in 1822 estimated at 54,476,931. But the most interesting part of the population to examine is that where lists of the births, deaths, and marriages can be obtained.

The following table, which is given in the Encyclopædia Britannica, under the head of Russia, is formed from the reports published by the Synod, including only the members of the Orthodox Greek Church, the most numerous body of the people.

	1806	1810	1816	1820
Marriages	299,057	320,389	329,683	317,805
Births	1,361,286	1,374,926	1,457,606	1,570,399
Deaths	818,585	903,380	820,383	917,680

The population belonging to the Greek Church is estimated at 40,351,000.

If the average excess of the births above the deaths be applied to the 14 years ending with 1820, it will appear that, from this excess alone, the population had increased in that period, 8,064,616; and if the population in 1820 were 40,351,000, the population in 1806 was 32,286,384. Comparing the average excess of births with the average population during the 14 years, it will be found that the proportion is as 1 to 63, which (according to Table II. at the end of the 11th Chapter of this Book) would double the population in less than 44 years; a most rapid rate of increase.

The proportion of births to marriages is a little above $4\frac{1}{2}$ to 1; of births to deaths, as 5 to 3; of marriages to the population, as

1 to 114; of births to the population as 1 to 25.2; and of deaths to the population, or the mortality, as 1 to 41.9.

Most of these proportions are essentially different from those mentioned in the earlier part of this chapter; but there is good reason to believe that they are more accurate; and they certainly accord better with the very rapid increase of population which is known to be going on in Russia.

The apparent increase of mortality is to be attributed rather to the former inaccuracy of the registers than to increased unhealthiness. It is now allowed that the registers before 1796 were very imperfectly kept.

CHAPTER IV

OF THE CHECKS TO POPULATION IN THE MIDDLE PARTS OF EUROPE

I HAVE dwelt longer on the northern states of Europe than their relative importance might to some appear to demand, because their internal economy is in many respects essentially different from our own, and a personal though slight acquaintance with these countries has enabled me to mention a few particulars which have not yet been before the public. In the middle parts of Europe the division of labour, the distribution of employments, and the proportion of the inhabitants of the country differ so little from what is observable in England that it would be in vain to seek for the checks to their population in any peculiarity of habits and manners sufficiently marked to admit of description. I shall therefore endeavour to direct the reader's attention principally to some inferences drawn from the lists of births, marriages, and deaths in different countries; and these data will, in many important points, give us more information respecting their internal economy than we could receive from the most observing traveller.

One of the most curious and instructive points of view in which we can consider lists of this kind appears to me to be the dependence of the marriages on the deaths. It has been justly observed by Montesquieu that, wherever there is a place for two persons to live comfortably, a marriage will certainly ensue:[1] but in most of the countries in Europe, in the present state of their population, experience will not allow us to expect any sudden and great increase in the means of supporting a family. The place therefore for the new marriage must, in general, be made by the dissolution of an old one; and we find in consequence that, except after some great mortality, from whatever cause it may have proceeded, or some sudden change of policy peculiarly favourable to cultivation and trade, the number of annual marriages is regulated principally by the number of annual deaths. They reciprocally influence each other. There are few countries in which the common people have so much foresight as to defer marriage till they have a fair

[1] Esprit des Loix, liv. xxii. c. x.

prospect of being able to support properly all their children. Some of the mortality therefore, in almost every country, is forced by the too great frequency of marriage; and in every country a great mortality, whether arising principally from this cause or occasioned by the number of great towns and manufactories and the natural unhealthiness of the situation, will necessarily produce a great frequency of marriage.

A most striking exemplification of this observation occurs in the case of some villages in Holland. Sussmilch has calculated the mean proportion of annual marriages compared with the number of inhabitants as between 1 in 107 and 1 in 113, in countries which have not been thinned by plagues or wars, or in which there is no sudden increase in the means of subsistence.[1] And Crome, a later statistical writer, taking a mean between 1 in 92 and 1 in 122, estimates the average proportion of marriages to inhabitants as 1 to 108.[2] But in the registers of 22 Dutch villages, the accuracy of which, according to Sussmilch, there is no reason to doubt, it appears that out of 64 persons there is 1 annual marriage.[3] This is a most extraordinary deviation from the mean proportion. When I first saw this number mentioned, not having then adverted to the mortality in these villages, I was much astonished; and very little satisfied with Sussmilch's attempt to account for it by talking of the great number of trades and the various means of getting a livelihood in Holland;[4] as it is evident that, the country having been long in the same state, there would be no reason to expect any great accession of new trades and new means of subsistence, and the old ones would of course all be full. But the difficulty was in a great measure solved when it appeared that the mortality was between 1 in 22 and 1 in 23,[5] instead of being 1 in 36, as is usual when the marriages are in the proportion of 1 to 108. The births and deaths were nearly equal. The extraordinary number of marriages was not caused by the opening of any new sources of subsistence, and therefore produced no increase of population. It was merely occasioned by the rapid dissolution of the old marriages

[1] Sussmilch, Göttliche Ordnung, vol. i. c. iv. sect. lvi. p. 126.

[2] Crome, ueber die Grösse und Bevölkerung der Europ. Staaten, p. 88, Leips. 1785.

[3] Sussmilch, Göttliche Ordnung, vol. i. c. iv. sect. lviii. p. 127. Such a proportion of marriages could not, however, be supplied in a country like Holland, from the births within the territory, but must be caused principally by the influx of foreigners: and it is known that such an influx, before the Revolution, was constantly taking place. Holland, indeed, has been called the grave of Germany.

[4] Ib. p. 128.

[5] Id. sect. xxxvi. p. 92.

by death, and the consequent vacancy of some employment by which a family could be supported.

It might be a question, in this case, whether the too great frequency of marriage, that is, the pressure of the population too hard against the limits of subsistence, contributed most to produce the mortality; or the mortality, occasioned naturally by the employments of the people and unhealthiness of the country, the frequency of marriage. In the present instance I should, without doubt, incline to the latter supposition; particularly as it seems to be generally agreed that the common people in Holland before the Revolution were, upon the whole, in a good state. The great mortality probably arose partly from the natural marshiness of the soil and the number of canals, and partly from the very great proportion of the people engaged in sedentary occupations, and the very small number in the healthy employments of agriculture.

A very curious and striking contrast to these Dutch villages, tending to illustrate the present subject, will be recollected in what was said respecting the state of Norway. In Norway the mortality is 1 in 48, and the marriages are 1 in 130. In the Dutch villages the mortality is 1 in 23, and the marriages 1 in 64. The difference both in the marriages and deaths is above double. They maintain their relative proportions in a very exact manner, and show how much the deaths and marriages mutually depend upon each other; and that, except where some sudden start in the agriculture of a country enlarges the means of subsistence, an increase of marriages must be accompanied by an increase of mortality, and *vice versâ*.

In Russia this sudden start in agriculture has in a great measure taken place; and consequently, though the mortality is very small, yet the proportion of marriages is not so. But in the progress of the population of Russia, if the proportion of marriages remain the same as at present, the mortality will inevitably increase; or if the mortality remain nearly the same, the proportion of marriages will diminish.

Sussmilch has produced some striking instances of this gradual decrease in the proportional number of marriages in the progress of a country to a greater degree of cleanliness, healthiness, and population, and a more complete occupation of all the means of gaining a livelihood.

In the town of Halle, in the year 1700, the number of annual marriages was to the whole population as 1 to 77. During the course of the 55 following years, this proportion changed gradu-

ally, according to Sussmilch's calculation, to 1 in 167.[1] This is a most extraordinary difference, and, if the calculation were quite accurate, would prove to what a degree the check to marriage had operated, and how completely it had measured itself to the means of subsistence. As however the number of people is estimated by calculation and not taken from enumerations, this very great difference in the proportions may not be perfectly correct, or may be occasioned in part by other causes.

In the town of Leipsic, in the year 1620, the annual marriages were to the population as 1 to 82; from the year 1741 to 1756 they were as 1 to 120.[2]

In Augsburg, in 1510, the proportion of marriages to the population was 1 to 86; in 1750 as 1 to 123.[3]

In Dantzic, in the year 1705, the proportion was as 1 to 89; in 1745 as 1 to 118.[4]

In the dukedom of Magdeburgh, in 1700, the proportion was as 1 to 87; from 1752 to 1755 as 1 to 125.

In the principality of Halberstadt in 1690, the proportion was as 1 to 88; in 1756 as 1 to 112.

In the dukedom of Cleves, in 1705, the proportion was 1 to 83; in 1755, 1 to 100.

In the Churmark of Brandenburgh, in 1700, the proportion was 1 to 76; in 1755, 1 to 108.[5]

More instances of this kind might be produced; but these are sufficient to show that in countries where, from a sudden increase in the means of subsistence, arising either from a great previous mortality or from improving cultivation and trade, room has been made for a great proportion of marriages, this proportion will annually decrease as the new employments are filled up, and there is no further room for an increasing population.

But in countries which have long been fully peopled, in which the mortality continues the same, and in which no new sources of subsistence are opening, the marriages being regulated principally by the deaths, will generally bear nearly the same proportion to the whole population at one period as at another. And the same constancy will take place even in countries where there is an annual increase in the means of subsistence, provided this increase be uniform and permanent. Supposing it to be such as for half a century to allow every year of a fixed proportion of marriages beyond those dissolved by death, the population

[1] Sussmilch, Göttliche Ordnung, vol. i. c. iv. sect. lxii. p. 132.
[2] Id. sect. lxiii. p. 134.
[3] Id. sect. lxiv. p. 134.
[4] Id. sect. lxv. p. 135.
[5] Id. sect. lxxi. p. 140.

would then be increasing, and perhaps rapidly; but it is evident that the proportion of marriages to the whole population might remain the same during the whole period.

This proportion Sussmilch has endeavoured to ascertain in different countries and different situations. In the villages of the Churmark of Brandenburgh, one marriage out of 109 persons takes place annually:[1] and the general proportion for agricultural villages he thinks may be taken at between 1 in 108 and 1 in 115.[2] In the small towns of the Churmark, where the mortality is greater, the proportion is 1 to 98;[3] in the Dutch villages mentioned before, 1 to 64; in Berlin 1 to 110;[4] in Paris 1 to 137.[5] According to Crome, in the *unmarrying* cities of Paris and Rome the proportion is only 1 to 60.[6]

All general proportions however of every kind should be applied with considerable caution, as it seldom happens that the increase of food and of population is uniform; and when the circumstances of a country are varying, either from this cause or from any change in the habits of the people with respect to prudence and cleanliness, it is evident that a proportion which is true at one period will not be so at another.

Nothing is more difficult than to lay down rules on these subjects that do not admit of exceptions. Generally speaking, it might be taken for granted that an increased facility in the means of gaining a livelihood, either from a great previous mortality or from improving cultivation and trade, would produce a greater proportion of annual marriages; but this effect might not perhaps follow. Supposing the people to have been before in a very depressed state and much of the mortality to have arisen from the want of foresight which usually accompanies such a state, it is possible that the sudden improvement of their condition might give them more of a decent and proper pride; and the consequence would be, that the proportional number of marriages might remain nearly the same, but they would all rear more of their children, and the additional population that was wanted would be supplied by a diminished mortality, instead of an increased number of births.

In the same manner, if the population of any country had been long stationary, and would not easily admit of an increase, it is possible that a change in the habits of the people, from improved

[1] Sussmilch, Göttliche Ordnung, vol. i. c. iv. sect. lvi. p. 125.
[2] Id. sect. lxxv. p. 147.
[3] Id. sect. lx. p. 129.
[4] Ibid.
[5] Id. sect. lxix. p. 137.
[6] Crome, über die Grösse und Bevölkerung der Europaischen Staaten, p. 89.

education or any other cause, might diminish the proportional number of marriages; but as fewer children would be lost in infancy from the diseases consequent on poverty, the diminution in the number of marriages would be balanced by the diminished mortality, and the population would be kept up to its proper level by a smaller number of births.

Such changes therefore in the habits of a people should evidently be taken into consideration.

The most general rule that can be laid down on this subject is, perhaps, that any *direct* encouragements to marriage must be accompanied by an increased mortality. The natural tendency to marriage is in every country so great, that without any encouragements whatever a proper place for a marriage will always be filled up. Such encouragements therefore must either be perfectly futile, or produce a marriage where there is not a proper place for one; and the consequence must necessarily be increased poverty and mortality. Montesquieu, in his Lettres Persannes, says that, in the past wars of France, the fear of being enrolled in the militia tempted a great number of young men to marry without the proper means of supporting a family, and the effect was the birth of a crowd of children, " que l'on cherche encore en France, et que la misère, la famine et les maladies en ont fait disparoître." [1]

After so striking an illustration of the necessary effects of direct encouragements to marriage, it is perfectly astonishing that in his Esprit des Loix he should say that Europe is still in a state to require laws which favour the propagation of the human species.[2]

Sussmilch adopts the same ideas; and though he contemplates the case of the number of marriages coming necessarily to a stand when the food is not capable of further increase, and examines some countries in which the number of contracted marriages is exactly measured by the number dissolved by death, yet he still thinks that it is one of the principal duties of government to attend to the number of marriages. He cites the examples of Augustus and Trajan, and thinks that a prince or a statesman would really merit the name of father of his people if, from the proportion of 1 to 120 or 125, he could increase the marriages to the proportion of 1 to 80 or 90.[3] But as it clearly appears, from the instances which he himself produces, that, in countries which have been long tolerably well peopled, death is

[1] Lettre cxxii. [2] Esprit des Loix, liv. xxiii. c. xxvi.
[3] Sussmilch, Göttliche Ordnung, vol. i. c. iv. sect. lxxviii. p. 151.

the most powerful of all the encouragements to marriage; the prince or statesman who should succeed in thus greatly increasing the number of marriages might, perhaps, deserve much more justly the title of destroyer, than father, of his people.

The proportion of yearly births to the whole population must evidently depend principally upon the proportion of the people marrying annually; and therefore, in countries which will not admit of a great increase of population, must, like the marriages, depend principally on the deaths. Where an actual decrease of population is not taking place, the births will always supply the vacancies made by death, and exactly so much more as the increasing resources of the country will admit. In almost every part of Europe, during the intervals of the great plagues, epidemics, or destructive wars with which it is occasionally visited, the births exceed the deaths; but as the mortality varies very much in different countries and situations, the births will be found to vary in the same manner, though from the excess of births above deaths which most countries can admit, not in the same degree.

In 39 villages of Holland, where the deaths are about 1 in 23, the births are also about 1 in 23.[1] In 15 villages round Paris the births bear the same, or even a greater, proportion to the whole population, on account of a still greater mortality; the births are 1 in $22\frac{7}{10}$, and the deaths the same.[2] In the small towns of Brandenburgh which are in an increasing state, the mortality is 1 in 29, and the births 1 in $24\frac{7}{16}$.[3] In Sweden, where the mortality is about 1 in 35, the births are 1 in 28.[4] In 1056 villages of Brandenburgh in which the mortality is about 1 in 39 or 40, the births are about 1 in 30.[5] In Norway, where the mortality is 1 in 48, the births are 1 in 34.[6] In all these instances, the births are evidently measured by the deaths, after making a proper allowance for the excess of births which the state of each country will admit.

Statistical writers have endeavoured to obtain a general measure of mortality for all countries taken together; but, if such a measure could be obtained, I do not see what good purpose it could answer. It would be but of little use in ascertaining the population of Europe or of the world; and it is evident that in applying it to particular countries or particular places we

[1] Sussmilch, Göttliche Ordnung, vol. i. c. vi. s. cxvi. p. 225.
[2] Ibid. and c. ii. s. xxvii. p. 93.
[3] Id. c. ii. s. xxviii. p. 80, and c. vi. s. cxvi. p. 225.
[4] Id. c. vi. s. cxvi. p. 225.
[5] Ibid.
[6] Thaarup's Statistik, vol. ii. p. 4.

might be led into the grossest errors. When the mortality of the human race in different countries and different situations varies so much as from 1 in 20 to 1 in 60, no general average could be used with safety in a particular case without such a knowledge of the circumstances of the country, with respect to the number of towns, the habits of the people, and the healthiness of the situation, as would probably supersede the necessity of resorting to any general proportion, by the knowledge of the particular proportion suited to the country.

There is one leading circumstance, however, affecting the mortality of countries which may be considered as very general, and which is, at the same time, completely open to observation. This is the number of towns, and the proportion of town to country inhabitants. The unfavourable effects of close habitations and sedentary employments on the health are universal; and therefore on the number of people living in this manner, compared with the number employed in agriculture, will much depend the general mortality of the state. Upon this principle it has been calculated that when the proportion of the people in the towns to those in the country is as 1 to 3, then the mortality is about 1 in 36: which rises to 1 in 35, or 1 in 33, when the proportion of townsmen to villagers is 2 to 5, or 3 to 7; and falls below 1 in 36 when this proportion is 2 to 7, or 1 to 4. On these grounds the mortality in Prussia is 1 in 38; in Pomerania 1 in 37½; in the Neumark 1 in 37; in the Churmark 1 in 35; according to the lists for 1756.[1]

The nearest average measure of mortality for all countries, taking towns and villages together, is, according to Sussmilch, 1 in 36.[2] But Crome thinks that this measure, though it might possibly have suited the time at which Sussmilch wrote, is not correct at present, when in most of the states of Europe both the number and size of the towns have increased.[3] He seems to be of opinion indeed, that this mortality was rather below the truth in Sussmilch's time, and that now 1 in 30 would be found to be nearer the average measure. It is not improbable that Sussmilch's proportion is too small, as he has a little tendency, with many other statistical writers, to throw out of his calculations epidemic years; but Crome has not advanced proofs sufficient to establish a general measure of mortality in opposition to that

[1] Sussmilch, Göttliche Ordnung, vol. iii. p. 60.
[2] Vol. i. c. ii. s. xxxv. p. 91.
[3] Crome, über die Grösse und Bevölkerung der Europaischen Staaten, p. 116.

proposed by Sussmilch. He quotes Busching, who states the mortality of the whole Prussian monarchy to be 1 in 30.[1] But it appears that this inference was drawn from lists for only three years, a period much too short to determine any general average. This proportion, for the Prussian monarchy, is indeed completely contradicted by subsequent observations mentioned by Crome. According to lists for five years, ending in 1784, the mortality was only 1 in 37.[2] During the same periods, the births were to the deaths as 131 to 100. In Silesia the mortality from 1781 to 1784 was 1 in 30; and the births to deaths as 128 to 100. In Gelderland the mortality from 1776 to 1781 was 1 in 27, and the births 1 in 26. These are the two provinces of the monarchy in which the mortality is the greatest. In some others it is very small. From 1781 to 1784 the average mortality in Neufchatel and Ballengin was only 1 in 44, and the births 1 in 31. In the principality of Halberstadtz, from 1778 to 1784, the mortality was still less, being only 1 in 45 or 46, and the proportion of births to deaths 137 to 100.[3]

The general conclusion which Crome draws is, that the states of Europe may be divided into three classes, to which a different measure of mortality ought to be applied. In the richest and most populous states, where the inhabitants of the towns are to the inhabitants of the country in so high a proportion as 1 to 3, the mortality may be taken as 1 to 30. In those countries which are in a middle state with regard to population and cultivation, the mortality may be considered as 1 in 32. And in the thinly-peopled northern states, Sussmilch's proportion of 1 in 36 may be applied.[4]

These proportions seem to make the general mortality too great, even after allowing epidemic years to have their full effect in the calculations. The improved habits of cleanliness, which appear to have prevailed of late years in most of the towns of Europe, have probably, in point of salubrity, more than counterbalanced their increased size.

1825

In a census which was made in 1817, of the population of Prussia in its present enlarged state, the number of inhabitants was found to be 10,536,571, of which 5,244,308 were males, and 5,320,535 were females. The births were 454,031, the deaths

[1] Crome, über die Bevölkerung der Europaisch. Staat. p. 118.
[2] Id. p. 120. [3] Id. p. 122. [4] Id. Europaischen Staaten, p. 127.

306,484, and the marriages 112,034. Of the births 53,576, or 1/8.4, were illegitimate. The proportion of males to females born was as 20 to 19. Of the illegitimate children 3 out of every 10 died in the first year after birth; of the legitimate 2 out of 10.[1]

The numbers here stated give a proportion of births to deaths as 149 to 100; of births to marriages as 4 to 1; of births to the population as 1 to 23.2; of deaths to the population, of males, as 1 to 33; of females, as 1 to 36; of both together, as 1 to 34½; and of marriages to the population as 1 to 94. The proportion of the excess of the births above the deaths to the population is as 1 to 62; an excess which, if continued, would double the population in about 43 years. As it is not however stated how long these proportions have continued, no very certain conclusions can be drawn from them; but there is little doubt that the population is proceeding with great rapidity.

[1] Supplement to the Encyclopædia Britannica, article Prussia.

CHAPTER V

OF THE CHECKS TO POPULATION IN SWITZERLAND

THE situation of Switzerland is in many respects so different from the other states of Europe, and some of the facts that have been collected respecting it are so curious, and tend so strongly to illustrate the general principles of this work, that it seems to merit a separate consideration.

About 35 or 40 years ago, a great and sudden alarm appears to have prevailed in Switzerland respecting the depopulation of the country; and the transactions of the Economical Society of Berne, which had been established some years before, were crowded with papers deploring the decay of industry, arts, agriculture, and manufactures, and the imminent danger of a total want of people. The greater part of these writers considered the depopulation of the country as a fact so obvious as not to require proof. They employed themselves, therefore, chiefly in proposing remedies, and, among others, the importation of midwives, the establishment of foundling hospitals, the portioning of young virgins, the prevention of emigration, and the encouragement of foreign settlers.[1]

A paper containing very valuable materials was, however, about this time published by M. Muret, minister of Vevay, who, before he proceeded to point out remedies, thought it necessary to substantiate the existence of the evil. He made a very laborious and careful research into the registers of the different parishes up to the time of their first establishment, and compared the number of births which had taken place during three different periods of 70 years each, the first ending in 1620, the second in 1690, and the third in 1760.[2] Finding upon this comparison that the number of births was rather less in the second than in the first period and (by the help of supposing some omissions in the second period, and some redundances in the third) that the number of births in the third was also less than in the second, he considered the evidence for a continued depopulation of the country from the year 1550 as incontrovertible.

[1] See the different Memoirs for the year 1766.

[2] Mémoires, etc., par la Société Economique de Berne. Année 1766, première partie, p. 15 et seq. octavo. Berne.

Admitting all the premises, the conclusion is not perhaps so certain as he imagined it to be: and from other facts which appear in his memoir, I am strongly disposed to believe that Switzerland during this period came under the case supposed in the last chapter; and that the improving habits of the people with respect to prudence, cleanliness, etc., had increased gradually the general healthiness of the country, and, by enabling them to rear up to manhood a greater proportion of their children, had furnished the requisite population with a smaller number of births. Of course, the proportion of annual births to the whole population, in the latter period, would be less than in the former.

From accurate calculations of M. Muret, it appears that during the last period the mortality was extraordinarily small, and the proportion of children reared from infancy to puberty extraordinarily great.[1] In the former periods this could not have been the case in the same degree. M. Muret himself observes that "the ancient depopulation of the country was to be attributed to the frequent plagues which, in former times, desolated it;" and adds, "if it could support itself, notwithstanding the frequency of so dreadful an evil, it is a proof of the goodness of the climate, and of the certain resources which the country could furnish for a prompt recovery of its population."[2] He neglects to apply this observation as he ought, and forgets that such a prompt repeopling could not take place without an unusual increase of births, and that, to enable a country to support itself against such a source of destruction, a greater proportion of births to the whole population would be necessary than at other times.

In one of his tables he gives a list of all the plagues that have prevailed in Switzerland since the year 1312, from which it appears that this dreadful scourge desolated the country, at short intervals, during the whole of the first period, and extended its occasional ravages to within 22 years of the termination of the second.[3]

It would be contrary to every rule of probability to suppose that, during the frequent prevalence of this disorder, the country could be particularly healthy and the general mortality extremely small. Let us suppose it to have been such as at present takes place in many other countries, which are exempt from this calamity, about 1 in 32, instead of 1 in 45, as in the last

[1] Mémoires, etc., par la Société Econ. de Berne. Année 1766, première partie, table xiii. p. 120.
[2] Id. table xiii. p. 22.
[3] Id. table iv. p. 22.

period. The births would of course keep their relative proportion, and instead of 1 in 36,[1] be about 1 in 26. In estimating the population of the country by the births, we should thus have two very different multipliers for the different periods; and though the absolute number of births might be greater in the first period, yet the fact would by no means imply a greater population.

In the present instance, the sum of the births in 17 parishes, during the first 70 years, is given as 49,860, which annually would be about 712. This, multiplied by 26, would indicate a population of 18,512. In the last period the sum of the births is given as 43,910,[2] which will be about 626 annually. This, multiplied by 36, will indicate a population of 22,536; and if the multipliers be just, it will thus appear that, instead of the decrease which was intended to be proved, there had been a considerable increase.

That I have not estimated the mortality too high during the first period I have many reasons for supposing, particularly a calculation respecting the neighbouring town of Geneva, in which it appears that, in the 16th century, the probability of life, or the age to which half of the born live, was only 4.883, rather less than four years and $\frac{9}{10}$ths; and the mean life 18.511, about 18 years and a half. In the 17th century, the probability of life was 11.607, above 11 years and a half; the mean life 23.358. In the 18th century the probability of life had increased to 27.183, 27 years and nearly a fifth, and the mean life to 32 years and a fifth.[3]

It is highly probable that a diminution of mortality, of the same kind, though perhaps not in the same degree, should have taken place in Switzerland; and we know from the registers of other countries which have been already noticed that a greater mortality naturally produces a greater proportion of births.

Of this dependence of the births on the deaths M. Muret himself produces many instances; but not being aware of the true principle of population, they only serve to astonish him, and he does not apply them.

Speaking of the want of fruitfulness in the Swiss women, he says, that Prussia, Brandenburgh, Sweden, France, and indeed every country, the registers of which he had seen, give a greater

[1] Mémoires, etc., par la Société Econ. de Berne. Année 1766, première partie, table i. p. 21.
[2] Id. table i. p. 16.
[3] See a paper in the Bibliothèque Britannique, published at Geneva, tom. iv. p. 328.

proportion of baptisms to the number of inhabitants than the Pays de Vaud, where this proportion is only as 1 to 36.[1] He adds, that from calculations lately made in the Lyonois, it appeared that in Lyons itself the proportion of baptisms was 1 to 28, in the small towns 1 to 25, and in the parishes 1 in 23 or 24. What a prodigious difference, he exclaims, between the Lyonois and the Pays de Vaud, where the most favourable proportion, and that only in two small parishes of extraordinary fecundity, is not above 1 in 26, and in many parishes it is considerably less than 1 in 40![2] *The same difference*, he remarks, takes place in the *mean life*. In the Lyonois it is a little above 25 years, while in the Pays de Vaud the lowest mean life, and that only in a single marshy and unhealthy parish, is 29½ years, and in many places it is above 45 years.[3]

"But whence comes it," he says, "that the country where children escape the best from the dangers of infancy, and where the mean life, in whatever way the calculation is made, is higher than in any other, should be precisely that in which the fecundity is the smallest? How comes it again that, of all our parishes, the one which gives the mean life the highest, should also be the one where the tendency to increase is the smallest?

"To resolve this question, I will hazard a conjecture which, however, I give only as such. Is not it that, in order to maintain in all places the proper equilibrium of population, God has wisely ordered things in such a manner as that the force of life in each country should be in the inverse ratio of its fecundity?[4]

"In fact, experience verifies my conjecture. Leyzin, a village in the Alps, with a population of 400 persons, produces but a little above eight children a year. The Pays de Vaud, in general, in proportion to the same number of inhabitants, produces 11, and the Lyonois 16. But if it happen that, at the age of 20 years, the 8, the 11, and the 16 are reduced to the same number, it will appear that the force of life gives in one place what fecundity does in another. And thus the most healthy countries, having less fecundity, will not overpeople themselves, and the unhealthy countries, by their extraordinary fecundity, will be able to sustain their population."

We may judge of the surprise of M. Muret at finding from the registers that the most healthy people were the least prolific

[1] Mémoires, etc., par la Société Econ. de Berne. Année 1766, première partie, p. 47, 48. [2] Id. p. 48. [3] Id.
[4] Id. p. 48 et seq.

by his betaking himself to a miracle in order to account for it. But the difficulty does not seem, in the present instance, to be worthy of such an interference. The fact may be accounted for without resorting to so strange a supposition as that the fruitfulness of women should vary inversely as their health.

There is certainly a considerable difference in the healthiness of different countries, arising partly from the soil and situation, and partly from the habits and employment of the people. When, from these or any other causes whatever, a great mortality takes place, a proportional number of births immediately ensues, owing both to the greater number of yearly marriages from the increased demand for labour, and the greater fecundity of each marriage from being contracted at an earlier, and naturally a more prolific, age.

On the contrary, when from opposite causes the healthiness of any country or parish is extraordinarily great; if, from the habits of the people, no vent for an overflowing population be found in emigration, the absolute necessity of the preventive check will be forced so strongly on their attention that they must adopt it or starve; and consequently the marriages being very late, the number annually contracted will not only be small in proportion to the population, but each individual marriage will naturally be less prolific.

In the parish of Leyzin, noticed by M. Muret, all these circumstances appear to have been combined in an unusual degree. Its situation in the Alps, but yet not too high, gave it probably the most pure and salubrious air; and the employments of the people, being all pastoral, were consequently of the most healthy nature. From the calculations of M. Muret, the accuracy of which there is no reason to doubt, the probability of life in this parish appeared to be so extraordinarily high as 61 years.[1] And the average number of the births being for a period of 30 years almost accurately equal to the number of deaths,[2] clearly proved that the habits of the people had not led them to emigrate, and that the resources of the parish for the support of population had remained nearly stationary. We are warranted therefore in concluding that the pastures were limited and could not easily be increased either in quantity or quality. The number of cattle which could be kept upon them would of course be limited; and in the same manner the number of persons required for the care of these cattle.

[1] Mémoires, etc., par la Société Econ. de Berne. Année 1766, table v. p. 64.

[2] Id. table i. p. 15.

Under such circumstances, how would it be possible for the young men who had reached the age of puberty to leave their fathers' houses and marry till an employment of herdsman, dairyman, or something of the kind became vacant by death? And as, from the extreme healthiness of the people, this must happen very slowly, it is evident that the majority of them must wait during a great part of their youth in their bachelor state, or run the most obvious risk of starving themselves and their families. The case is still stronger than in Norway, and receives a particular precision from the circumstances of the births and deaths being so nearly equal.

If a father had unfortunately a larger family than usual, the tendency of it would be rather to decrease than increase the number of marriages. He might perhaps with economy be just able to support them all at home, though he could not probably find adequate employment for them on his small property; but it would evidently be long before they could quit him, and the first marriage among the sons would probably be after the death of the father; whereas, if he had had only two children, one of them might perhaps have married without leaving the parental roof, and the other on the death of the father. It may be said perhaps in general that the absence or presence of four grown-up unmarried people will make the difference of there being room or not for the establishment of another marriage and a fresh family.

As the marriages in this parish would, with few exceptions, be very late, and yet from the extreme healthiness of the situation be very slowly dissolved by the death of either of the parties, it is evident that a very large proportion of the subsisting marriages would be among persons so far advanced in life that most of the women would have ceased to bear children; and in consequence the whole number of subsisting marriages was found to be to the number of annual births in the very unusual proportion of 12 to 1. The births were only about a 49th part of the population; and the number of persons above sixteen was to the number below that age nearly as 3 to 1.[1]

As a contrast to this parish, and a proof how little the number of births can be depended upon for an estimate of population, M. Muret produces the parish of St. Cergue in the Jura, in which the subsisting marriages were to the annual births only in the proportion of 4 to 1, the births were a 26th part of the population, and the number of persons above and below sixteen just equal.[2]

[1] Mémoires, etc., par la Société Econ. de Berne. Année 1766, p. 11 and 12.
[2] Ibid.

Judging of the population of these parishes from the proportion of their annual births, it would appear, he says, that Leyzin did not exceed St. Cergue by above one-fifth at most; whereas, from actual enumeration, the population of the former turned out to be 405, and of the latter only 171.[1]

I have chosen, he observes, the parishes where the contrast is the most striking; but though the difference be not so remarkable in the rest, yet it will always be found true that from one place to another, even at very small distances, and in situations apparently similar, the proportions will vary considerably.[2]

It is strange that, after making these observations, and others of the same tendency, which I have not produced, he should rest the whole proof of the depopulation of the Pays de Vaud on the proportion of births. There is no good reason for supposing that this proportion should not be different at different periods, as well as in different situations. The extraordinary contrast in the fecundity of the two parishes of Leyzin and St. Cergue depends upon causes within the power of time and circumstances to alter. From the great proportion of infants which was found to grow up to maturity in St. Cergue, it appeared that its natural healthiness was not much inferior to that of Leyzin.[3] The proportion of its births to deaths was 7 to 4;[4] but as the whole number of its inhabitants did not exceed 171, it is evident that this great excess of births could not have been regularly added to the population during the last two centuries. It must have arisen therefore either from a sudden increase of late years in the agriculture or trade of the parish, or from a habit of emigration. The latter supposition I conceive to be the true one; and it seems to be confirmed by the small proportion of adults which has already been noticed. The parish is situated in the Jura, by the side of the high road from Paris to Geneva, a situation which would evidently tend to facilitate emigration; and, in fact, it seems to have acted the part of a breeding parish for the towns and flat countries; and the annual drain of a certain portion of the adults made room for all the rest to marry and to rear a numerous offspring.

A habit of emigration in a particular parish will not only depend on situation, but probably often on accident. I have little doubt that three or four very successful emigrations have frequently given a spirit of enterprise to a whole village; and three or four unsuccessful ones a contrary spirit. If a habit of

[1] Mémoires, etc., par la Société Econ. de Berne. Année 1766, p. 11.
[2] Id. p. 13. [3] Id. table xiii. p. 120. [4] Id. table i. p. 11.

emigration were introduced into the village of Leyzin, it is not to be doubted that the proportion of births would be immediately changed; and at the end of twenty years an examination of its registers might give results as different from those at the time of M. Muret's calculations as they were then from the contrasted parish of St. Cergue. It will hence appear that other causes besides a greater mortality will concur to make an estimate of population, at different periods, from the proportion of births, liable to great uncertainty.

The facts which M. Muret has collected are all valuable, though his inferences cannot always be considered in the same light. He made some calculations at Vevay, of a nature really to ascertain the question respecting the fecundity of marriages, and to show the incorrectness of the usual mode of estimating it, though without this particular object in view at the time. He found that 375 mothers had yielded 2093 children, all born alive; from which it followed, that each mother had produced $5\frac{1}{17}$, or nearly six children.[1] These, however, were all actually mothers, which every wife is not; but allowing for the usual proportion of barren wives at Vevay, which he had found to be 20 out of 478, it will still appear that the married women one with another produced above $5\frac{1}{3}$ children.[2] And yet this was in a town the inhabitants of which he seems to accuse of not entering into the marriage state at the period when nature calls them, and, when married, of not having all the children which they might have.[3] The general proportion of the annual marriages to the annual births in the Pays de Vaud is as 1 to 3.9,[4] and of course, according to the common mode of calculation, the marriages would appear to yield 3.9 children each.

In a division of the Pays de Vaud into eight different districts, M. Muret found, that in seven towns the mean life was 36 years; and the probability of life, or the age to which half of the born live, 37. In 36 villages the mean life was 37, and the probability of life 42. In nine parishes of the Alps the mean life was 40, and the probability of life 47. In seven parishes of the Jura these two proportions were 38 and 42: in 12 corn parishes, 37 and 40; in 18 parishes among the great vineyards, 34 and 37; in

[1] Mémoires, etc., par la Société Econ. de Berne. Année 1766, p. 29 et seq.

[2] On account of second and third marriages, the fecundity of marriages must always be less than the fecundity of married women. The mothers alone are here considered, without reference to the number of husbands.

[3] Mémoires, etc., par la Société Econ. de Berne. Année 1766, p. 32.

[4] Id. table i. p. 21.

six parishes of mixed vines and hills, $33\frac{9}{10}$ and 36; and in one marshy parish, 29 and 24.[1]

From another table it appears, that the number of persons dying under the age of 15 was less than $\frac{1}{5}$ in the extraordinary parish of Leyzin; and less than $\frac{1}{4}$ in many other parishes of the Alps and the Jura. For the whole of the Pays de Vaud it was less than $\frac{1}{3}$.[2]

In some of the largest towns, such as Lausanne and Vevay, on account of the number of strangers settling in them, the proportion of adults to those under 16 was nearly as great as in the parish of Leyzin, and not far from 3 to 1. In the parishes from which there were not many emigrations, this proportion was about 2 to 1. And in those which furnished inhabitants for other countries, it approached more towards an equality.[3]

The whole population of the Pays de Vaud, M. Muret estimated at 113,000, of which 76,000 were adults. The proportion of adults therefore to those under the age of sixteen, for the whole country, was 2 to 1. Among these 76,000 adults, there were 19,000 subsisting marriages, and consequently 38,000 married persons; and the same number of persons unmarried, though of the latter number 9000, according to M. Muret, would probably be widows or widowers.[4] With such an average store of unmarried persons, notwithstanding the acknowledged emigrations, there was little ground for the supposition that these emigrations had essentially affected the number of annual marriages and checked the progress of population.

The proportion of annual marriages to inhabitants in the Pays de Vaud, according to M. Muret's tables, was only 1 to 140,[5] which is even less than in Norway.

All these calculations of M. Muret imply the operation of the preventive check to population in a considerable degree throughout the whole of the district which he considered; and there is reason to believe that the same habits prevail in other parts of Switzerland, though varying considerably from place to place, according as the situation or the employments of the people render them more or less healthy, or the resources of the country make room or not for an increase.

In the town of Berne, from the year 1583 to 1654, the sovereign council had admitted into the Bourgeoisie 487 families, of

[1] Mémoires, etc., par la Société Econ. de Berne. Année 1766, table viii. p. 92 et seq.
[2] Id. table xiii. p. 120.
[3] Id. table xii.
[4] Id. première partie, p. 27.
[5] Id. table i.

which 379 became extinct in the space of two centuries, and in 1783 only 108 of them remained. During the hundred years from 1684 to 1784, 207 Bernoise families became extinct. From 1624 to 1712, the Bourgeoisie was given to 80 families. In 1623, the sovereign council united the members of 112 different families, of which 58 only remain.[1]

The proportion of unmarried persons in Berne, including widows and widowers, is considerably above the half of the adults; and the proportion of those below sixteen to those above is not far from 1 to 3.[2] These are strong proofs of the powerful operation of the preventive check.

The peasants in the canton of Berne have always had the reputation of being rich, and without doubt it is greatly to be attributed to this cause. A law has for some time prevailed which makes it necessary for every peasant to prove himself in possession of the arms and accoutrements necessary for the militia before he can obtain permission to marry. This at once excludes the very poorest from marriage; and a very favourable turn may be given to the habits of many others from a knowledge that they cannot accomplish the object of their wishes without a certain portion of industry and economy. A young man who, with this end in view, had engaged in service either at home or in a foreign country, when he had gained the necessary sum, might feel his pride rather raised, and not to be contented merely with what would obtain him permission to marry, but go on till he could obtain something like a provision for a family.

I was much disappointed, when in Switzerland, at not being able to procure any details respecting the smaller cantons; but the disturbed state of the country made it impossible. It is to be presumed, however, that as they are almost entirely in pasture they must resemble in a great measure the alpine parishes of the Pays de Vaud in the extraordinary health of the people, and the absolute necessity of the preventive check; except where these circumstances may have been altered by a more than usual habit of emigration, or by the introduction of manufactures.[3]

[1] Statistique de la Suisse, Durand, tom. iv. p. 405. 8vo. 4 vols. Lausanne, 1796.

[2] Beschreibung von Bern, vol. ii. table i. p. 35, 2 vols. 8vo. Bern. 1796.

[3] M. Prevost, of Geneva, in his translation of this work, gives some account of the small Canton of Glavis, in which the cotton-manufacture had been introduced. It appears that it had been very prosperous at first, and had occasioned a habit of early marriages, and a considerable increase of population; but consequently wages became extremely low, and a fourth part of the population was dependent upon charity for their support. The proportions of the births and deaths to the population, instead

The limits to the population of a country strictly pastoral are strikingly obvious. There are no grounds less susceptible of improvement than mountainous pastures. They must necessarily be left chiefly to nature; and when they have been adequately stocked with cattle, little more can be done. The great difficulty in these parts of Switzerland, as in Norway, is to procure a sufficient quantity of fodder for the winter support of the cattle which have been fed on the mountains in the summer. For this purpose grass is collected with the greatest care. In places inaccessible to cattle, the peasant sometimes makes hay with crampons on his feet; in some places grass not three inches high is cut three times a year; and in the valleys, the fields are seen shaven as close as a bowling-green, and all the inequalities clipped as with a pair of scissors. In Switzerland as in Norway, for the same reasons, the art of mowing seems to be carried to its highest pitch of perfection. As, however, the improvement of the lands in the valleys must depend principally upon the manure arising from the stock, it is evident that the quantity of hay and the number of cattle will be mutually limited by each other; and as the population will of course be limited by the produce of the stock, it does not seem possible to increase it beyond a certain point, and that at no great distance. Though the population, therefore, in the flat parts of Switzerland has increased during the last century, there is reason to believe that it has been stationary in the mountainous parts. According to M. Muret it has decreased very considerably in the Alps of the Pays de Vaud; but his proofs of this fact have been noticed as extremely uncertain. It is not probable that the Alps are less stocked with cattle than they were formerly; and if the inhabitants be really rather fewer in number, it is probably owing to the smaller proportion of children, and to the improvement which has taken place in the mode of living.

In some of the smaller cantons manufactures have been introduced, which, by furnishing a greater quantity of employment, and at the same time a greater quantity of exports for the purchase of corn, have of course considerably increased their popula-

of being 1 to 36 and 1 to 45, as in the Pays de Vaud, had become as 1 to 26 and 1 to 35. And, according to a later account in the last translation, the proportion of the births to the population, during the 14 years from 1805 to 1819, was as 1 to 24, and of the deaths as 1 to 30.

These proportions show the prevalence of early marriages, and its natural consequences in such a situation, and under such circumstances —great poverty and great mortality. M. Heer, who gave M. Prevost the information, seems to have foreseen these consequences early.

tion. But the Swiss writers seem generally to agree that the districts where they have been established have upon the whole suffered in point of health, morals, and happiness.

It is the nature of pasturage to produce food for a much greater number of people than it can employ. In countries strictly pastoral, therefore, many persons will be idle, or at most be very inadequately occupied. This state of things naturally disposes to emigration, and is the principal reason why the Swiss have been so much engaged in foreign service. When a father has more than one son, those who are not wanted on the farm are powerfully tempted to enrol themselves as soldiers, or to emigrate in some other way, as the only chance of enabling them to marry.

It is possible, though not probable, that a more than usual spirit of emigration, operating upon a country in which, as it has appeared, the preventive check prevailed to a very considerable degree, might have produced a temporary check to increase at the period when there was such a universal cry about depopulation. If this were so, it without doubt contributed to improve the condition of the lower classes of people. All the foreign travellers in Switzerland, soon after this time, invariably take notice of the state of the Swiss peasantry as superior to that of other countries. In a late excursion to Switzerland, I was rather disappointed not to find it so superior as I had been taught to expect. The greatest part of the unfavourable change might justly be attributed to the losses and sufferings of the people during the late troubles; but a part perhaps to the ill-directed efforts of the different governments to increase the population, and to the ultimate consequences even of efforts well directed, and for a time calculated to advance the comforts and happiness of the people.

I was very much struck with an effect of this last kind in an expedition to the *Lac de Joux* in the Jura. The party had scarcely arrived at a little inn at the end of the lake when the mistress of the house began to complain of the poverty and misery of all the parishes in the neighbourhood. She said that the country produced little, and yet was full of inhabitants; that boys and girls were marrying who ought still to be at school; and that, while this habit of early marriages continued, they should always be wretched and distressed for subsistence.

The peasant, who afterwards conducted us to the source of the Orbe, entered more fully into the subject, and appeared to understand the principle of population almost as well as any man I

ever met with. He said, that the women were prolific, and the air of the mountains so pure and healthy, that very few children died, except from the consequences of absolute want; that the soil, being barren, was inadequate to yield employment and food for the numbers that were yearly growing up to manhood; that the wages of labour were consequently very low, and totally insufficient for the decent support of a family; but that the misery and starving condition of the greater part of the society did not operate as a warning to others, who still continued to marry, and to produce a numerous offspring which they could not support. This habit of early marriages might really, he said, be called *le vice du pays;* and he was so strongly impressed with the necessary and unavoidable wretchedness that must result from it, that he thought a law ought to be made restricting men from entering into the marriage state before they were forty years of age, and then allowing it only with "*des vieilles filles,*" who might bear them two or three children instead of six or eight.

I could not help being diverted with the earnestness of his oratory on this subject, and particularly with his concluding proposition. He must have seen and felt the misery arising from a redundant population most forcibly to have proposed so violent a remedy. I found upon inquiry that he had himself married very young.

The only point in which he failed, as to his philosophical knowledge of the subject, was in confining his reasonings too much to barren and mountainous countries, and not extending them to the plains. In fertile situations, he thought, perhaps, that the plenty of corn and employment might remove the difficulty, and allow of early marriages. Not having lived much in the plains, it was natural for him to fall into this error; particularly as in such situations the difficulty is not only more concealed from the extensiveness of the subject, but is in reality less, from the greater mortality naturally occasioned by low grounds, towns, and manufactories.

On inquiring into the principal cause of what he had named the *predominant vice* of his country, he explained it with great philosophical precision. He said, that a manufacture for the polishing of stones had been established some years ago, which for a time had been in a very thriving state, and had furnished high wages and employment to all the neighbourhood; that the facility of providing for a family, and of finding early employment for children, had greatly encouraged early marriages; and

that the same habit had continued, when, from a change of fashion, accident, and other causes, the manufacture was almost at an end. Very great emigrations, he said, had of late years taken place; but the breeding system went on so fast, that they were not sufficient to relieve the country of its superabundant mouths, and the effect was such as he had described to me, and as I had in part seen.

In other conversations which I had with the lower classes of people in different parts of Switzerland and Savoy, I found many who, though not sufficiently skilled in the principle of population to see its effects on society, like my friend of the *Lac de Joux*, yet saw them clearly enough as affecting their own individual interests; and were perfectly aware of the evils which they should probably bring upon themselves by marrying before they could have a tolerable prospect of being able to maintain a family. From the general ideas which I have found to prevail on these subjects, I should by no means say that it would be a difficult task to make the common people comprehend the principle of population, and its effect in producing low wages and poverty.

Though there is no absolute provision for the poor in Switzerland, yet each parish generally possesses some seigniorial rights and property in land for the public use, and is expected to maintain its own poor. These funds, however, being limited, will of course often be totally insufficient; and occasionally voluntary collections are made for this purpose. But the whole of the supply being comparatively scanty and uncertain, it has not the same bad effects as the parish-rates of England. Of late years much of the common lands belonging to parishes have been parcelled out to individuals, which has of course tended to improve the soil and increase the number of people; but from the manner in which it has been conducted, it has operated perhaps too much as a systematic encouragement of marriage, and has contributed to increase the number of poor. In the neighbourhood of the richest *communes*, I often observed the greatest number of beggars.

There is reason to believe, however, that the efforts of the Economical Society of Berne to promote agriculture were crowned with some success: and that the increasing resources of the country have made room for an additional population, and furnished an adequate support for the greatest part, if not the whole, of that increase which has of late taken place.

In 1764 the population of the whole canton of Berne, including the Pays de Vaud, was estimated at 336,689. In 1791, it had increased to 414,420. From 1764 to 1777, its increase proceeded at the rate of 2000 each year; and from 1778 to 1791 at the rate of 3109 each year.[1]

[1] Beschreibung von Bern, vol. ii. p. 40.

CHAPTER VI

OF THE CHECKS TO POPULATION IN FRANCE

As the parochial registers in France, before the revolution, were not kept with particular care, nor for any great length of time, and as the few which have been produced exhibit no very extraordinary results, I should not have made this country the subject of a distinct chapter but for a circumstance attending the revolution which has excited considerable surprise. This is, the undiminished state of the population in spite of the losses sustained during so long and destructive a contest.[1]

A great national work, founded on the reports of the prefects in the different departments, is at present in some state of forwardness at Paris, and when completed may reasonably be expected to form a very valuable accession to the materials of statistical science in general. The returns of all the prefects are not however yet complete; but I was positively assured by the person who has the principal superintendence of them, that enough is already known to be certain that the population of the old territory of France has rather increased than diminished during the revolution.

Such an event, if true, very strongly confirms the general principles of this work; and assuming it for the present as a fact, it may tend to throw some light on the subject, to trace a little in detail the manner in which such an event might happen.

In every country there is always a considerable body of unmarried persons, formed by the gradual accumulation of the excess of the number rising annually to the age of puberty above the number of persons annually married. The stop to the further accumulation of this body is when its number is such that the yearly mortality equals the yearly accessions that are made to it. In the Pays de Vaud, as appeared in the last chapter, this body, including widows and widowers, persons who are not actually in the state of marriage, equals the whole number of married persons. But in a country like France, where both the mortality and the

[1] This chapter was written in 1802, and refers to the state of France before the peace of Amiens.

tendency to marriage are much greater than in Switzerland, this body does not bear so large a proportion to the population.

According to a calculation in an *Essai d'une Statistique Générale*, published at Paris in 1800, by M. Peuchet, the number of unmarried males in France between 18 and 50 is estimated at 1,451,063; and the number of males, whether married or not, between the same ages at 5,000,000.[1] It does not appear at what period exactly this calculation was made; but as the author uses the expression *en tems ordinaire*, it is probable that he refers to the period before the revolution. Let us suppose, then, that this number of 1,451,063 expresses the collective body of unmarried males of a military age at the commencement of the revolution.

The population of France before the beginning of the war was estimated by the Constituent Assembly at 26,363,074;[2] and there is no reason to believe that this calculation was too high. Necker, though he mentions the number of 24,800,000, expresses his firm belief that the yearly births at that time amounted to above a million, and consequently, according to his multiplier of $25\frac{3}{4}$, the whole population was nearly 26 millions;[3] and this calculation was made ten years previous to the estimate of the Constituent Assembly.

Taking then the annual births at rather above a million, and estimating that rather above $\frac{2}{5}$ would die under 18, which appears to be the case from some calculations of M. Peuchet,[4] it will follow that above 600,000 persons will annually arrive at the age of 18.

The annual marriages, according to Necker, are 213,774;[5] but as this number is an average of ten years, taken while the population was increasing, it is probably too low. If we take 220,000, then 440,000 persons will be supposed to marry out of the 600,000 rising to a marriageable age; and, consequently, the excess of those rising to the age of 18 above the number wanted to complete the usual proportion of annual marriages will be 160,000, or 80,000 males. It is evident, therefore, that the accumulated body of 1,451,063 unmarried males, of a military age, and the annual supply of 80,000 youths of 18, might be taken for the service of the state, without affecting in any degree the number of annual marriages. But we cannot suppose that the 1,451,063 should be taken all at once; and many soldiers

[1] P. 32. 8vo. 78 pages.
[2] A. Young's Travels in France, vol. i. c. xvii. p. 466. 4to. 1792.
[3] De l'Administration des Finances, tom. i. c. ix. p. 256. 12mo. 1785.
[4] Essai, p. 31. [5] De l'Administration des Finances, tom. i. c. ix. p. 255.

are married, and in a situation not to be entirely useless to the population. Let us suppose 600,000 of the corps of unmarried males to be embodied at once; and this number to be kept up by the annual supply of 150,000 persons, taken partly from the 80,000, rising annually to the age of 18, and not wanted to complete the number of annual marriages, and partly from the 851,063 remaining of the body of unmarried males, which existed at the beginning of the war: it is evident, that from these two sources 150,000 might be supplied each year, for ten years, and yet allow of an increase in the usual number of annual marriages of above 10,000.

It is true that in the course of the ten years many of the original body of unmarried males will have passed the military age; but this will be balanced, and indeed much more than balanced, by their utility in the married life. From the beginning it should be taken into consideration, that though a man of fifty be generally considered as past the military age, yet, if he marry a fruitful subject, he may by no means be useless to the population; and in fact the supply of 150,000 recruits each year would be taken principally from the 300,000 males rising annually to 18; and the annual marriages would be supplied in a great measure from the remaining part of the original body of unmarried persons. Widowers and bachelors of forty and fifty, who in the common state of things might have found it difficult to obtain an agreeable partner, would probably see these difficulties removed in such a scarcity of husbands; and the absence of 600,000 persons would of course make room for a very considerable addition to the number of annual marriages. This addition in all probability took place. Many among the remaining part of the original body of bachelors, who might otherwise have continued single, would marry under this change of circumstances; and it is known that a very considerable portion of youths under 18, in order to avoid the military conscriptions, entered prematurely into the married state. This was so much the case, and contributed so much to diminish the number of unmarried persons, that in the beginning of the year 1798 it was found necessary to repeal the law which had exempted married persons from conscriptions; and those who married subsequently to this new regulation were taken indiscriminately with the unmarried. And though after this the levies fell in part upon those who were actually engaged in the peopling of the country; yet the number of marriages untouched by these levies might still remain greater than the usual number of marriages before the

revolution; and the marriages which were broken by the removal of the husband to the armies would not probably have been entirely barren.

Sir Francis d'Ivernois, who had certainly a tendency to exaggerate, and probably has exaggerated considerably, the losses of the French nation, estimates the total loss of the troops of France, both by land and sea, up to the year 1799, at a million and a half.[1] The round numbers which I have allowed for the sake of illustrating the subject, exceed Sir Francis d'Ivernois's estimate by six hundred thousand. He calculates however a loss of a million of persons more, from the other causes of destruction attendant on the revolution; but as this loss fell indiscriminately on all ages and both sexes, it would not affect the population in the same degree, and will be much more than covered by the 600,000 men in the full vigour of life which remain above Sir Francis's calculation. It should be observed also, that in the latter part of the revolutionary war the military conscriptions were probably enforced with still more severity in the newly-acquired territories than in the old state; and as the population of these new acquisitions is estimated at five or six millions, it would bear a considerable proportion of the million and a half supposed to be destroyed in the armies.

The law which facilitated divorces to so great a degree in the early part of the revolution was radically bad both in a moral and political view, yet, under the circumstances of a great scarcity of men, it would operate a little like the custom of polygamy, and increase the number of children in proportion to the number of husbands. In addition to this, the women without husbands do not appear all to have been barren; as the proportion of illegitimate births is now raised to $\frac{1}{11}$ of the whole number of births, from $\frac{1}{17}$,[2] which it was before the revolution; and though this be a melancholy proof of the depravation of morals, yet it would certainly contribute to increase the number of births; and as the female peasants in France were enabled to earn more than usual

[1] Tableau des Pertes, etc., c. ii. p. 7.—M. Garnier, in the notes to his edition of Adam Smith, calculates that only about a sixtieth part of the French population was destroyed in the armies. He supposes only 500,000 embodied at once, and that this number was supplied by 400,000 more in the course of the war; and allowing for the number which would die naturally, that the additional mortality occasioned by the war was only about 45,000 each year. Tom. v. note xxx. p. 284. If the actual loss were no more than these statements make it, a small increase of births would have easily repaired it; but I should think that these estimates are probably as much below the truth as Sir Francis d'Ivernois's are above.

[2] Essai de Peuchet, p. 28.

during the revolution, on account of the scarcity of hands, it is probable that a considerable portion of these children would survive.

Under all these circumstances, it cannot appear impossible, and scarcely even improbable, that the population of France should remain undiminished, in spite of all the causes of destruction which have operated upon it during the course of the revolution, provided the agriculture of the country has been such as to continue the means of subsistence unimpaired. And it seems now to be generally acknowledged that, however severely the manufactures of France may have suffered, her agriculture has rather increased than diminished. At no period of the war can we suppose that the number of embodied troops exceeded the number of men employed before the revolution in manufactures. Those who were thrown out of work by the destruction of these manufactures, and who did not go to the armies, would of course betake themselves to the labours of agriculture; and it was always the custom in France for the women to work much in the fields, which custom was probably increased during the revolution. At the same time, the absence of a large portion of the best and most vigorous hands would raise the price of labour; and as, from the new land brought into cultivation, and the absence of a considerable part of the greatest consumers [1] in foreign countries, the price of provisions would not rise in proportion, this advance in the real price of labour would not only operate as a powerful encouragement to marriage, but would enable the peasants to live better, and to rear a greater number of their children.

At all times the number of small farmers and proprietors in France was great; and though such a state of things is by no means favourable to the clear surplus produce or disposable wealth of a nation; yet sometimes it is not unfavourable to the absolute produce, and it has always a strong tendency to encourage population. From the sale and division of many of the large domains of the nobles and clergy, the number of landed proprietors has considerably increased during the revolution; and as a part of these domains consisted of parks and chases, new territory has been given to the plough. It is true that the land-tax has been not only too heavy, but injudiciously imposed.

[1] Supposing the increased number of children at any period to equal the number of men absent in the armies, yet these children, being all very young, could not be supposed to consume a quantity equal to that which would be consumed by the same number of grown-up persons.

It is probable, however, that this disadvantage has been nearly counterbalanced by the removal of the former oppressions under which the cultivator laboured; and that the sale and division of the great domains may be considered as a clear advantage on the side of agriculture, or at any rate of the gross produce, which is the principal point with regard to mere population.

These considerations make it appear probable that the means of subsistence have at least remained unimpaired, if they have not increased, during the revolution; and a view of the cultivation of France in its present state certainly rather tends to confirm this supposition.

We shall not therefore be inclined to agree with Sir Francis d'Ivernois in his conjecture that the annual births in France have diminished by one-seventh during the revolution.[1] On the contrary, it is more probable that they have increased by this number. The average proportion of births to the population in all France, before the revolution, was, according to Necker, as 1 to $25\frac{3}{4}$.[2] It has appeared in the reports of some of the prefects which have been returned, that the proportion in many country places was raised to 1 to 21, 22, $22\frac{1}{2}$, and 23;[3] and though these proportions might, in some degree, be caused by the absence of a part of the population in the armies, yet I have little doubt that they are principally to be attributed to the birth of a greater number of children than usual. If, when the reports of all the prefects are put together, it should appear, that the number of births has not increased in proportion to the population, and yet that the population is undiminished; it will follow, either that Necker's multiplier for the births was too small, which is extremely probable, as from this cause he appears to have calculated the population too low; or that the mortality among those not exposed to violent deaths has been less than usual; which, from the high price of labour and the desertion of the towns for the country, is not unlikely.

According to Necker and Moheau, the mortality in France, before the revolution, was 1 in 30 or $31\frac{1}{8}$.[4] Considering that the proportion of the population which lives in the country is to that in the towns as $3\frac{1}{2}$ to 1,[5] this mortality is extraordinarily great, caused probably by the misery arising from an excess of popula-

[1] Tableau des Pertes, etc., c. ii. p. 14.
[2] De l'Administration des Finances, tom. i. c. ix. p. 254.
[3] Essai de Peuchet, p. 28.
[4] De l'Administration des Finances, tom. i. c. ix. p. 255. Essai de Peuchet, p. 29.
[5] Young's Travels in France, vol. i. c. xvii. p. 466.

tion; and from the remarks of Arthur Young on the state of the peasantry in France,[1] which are completely sanctioned by Necker,[2] this appears to have been really the case. If we suppose that, from the removal of a part of this redundant population, the mortality has decreased from 1 in 30 to 1 in 35, this favourable change would go a considerable way in repairing the breaches made by war on the frontiers.

The probability is, that both the causes mentioned have operated in part. The births have increased, and the deaths of those remaining in the country have diminished; so that, putting the two circumstances together, it will probably appear, when the results of all the reports of the prefects are known, that, including those who have fallen in the armies and by violent means, the deaths have not exceeded the births in the course of the revolution.

The returns of the prefects are to be given for the year IX. of the republic, and to be compared with the year 1789; but if the proportion of births to the population be given merely for the individual year IX. it will not show the average proportion of births to the population during the course of the revolution. In the confusion occasioned by this event, it is not probable that any very exact registers should have been kept; but from theory I should be inclined to expect that soon after the beginning of the war, and at other periods during the course of it, the proportion of births to the whole population would be greater than in 1800 and 1801.[3] If it should appear by the returns, that the number

[1] See generally c. xvii. vol. i. and the just observations on these subjects interspersed in many other parts of his very valuable Tour.

[2] De l'Administration des Finances, tom. i. c. ix. p. 262 et seq.

[3] In the *Statistique Générale et Particulière de la France, et de ses Colonies*, lately published, the returns of the prefects for the year IX. are given, and seem to justify this conjecture. The births are 955,430, the deaths 821,871, and the marriages 202,177. These numbers hardly equal Necker's estimates; and yet all the calculations in this work, both with respect to the whole population and its proportion to a square league, make the old territory of France more populous now than at the beginning of the revolution. The estimate of the population, at the period of the Constituent Assembly, has already been mentioned; and at this time the number of persons to a square league was reckoned 996. In the year VI. of the republic, the result of the Bureau de Cadastre gave a population of 26,048,254, and the number to a square league 1020. In the year VII. Dépère calculated the whole population of France at 33,501,094, of which 28,810,694 belonged to ancient France; the number to a square league 1101; but the calculations, it appears, were founded upon the first estimate made by the Constituent Assembly, which was afterwards rejected as too high. In the year IX. and X. the addition of Piedmont and the isle of Elba raised the whole population to 34,376,313; the number to a square league 1086. The number belonging to Old France is not stated. It seems to have been about 28,000,000.

of annual marriages has not increased during the revolution, the circumstance will be obviously accounted for by the extraordinary increase in the illegitimate births mentioned before in this chapter, which amount at present to one-eleventh of all the births, instead of one-forty-seventh, according to the calculation of Necker before the revolution.[1]

Sir Francis d'Ivernois observes, "that those have yet to learn the first principles of political arithmetic, who imagine that it is

In the face of these calculations, the author takes a lower multiplier than Necker for the births, observing that though Necker's proportions remained true in the towns, yet in the country the proportion of births had increased to $\frac{1}{31}$, $\frac{1}{32}$, $\frac{1}{32}\frac{1}{2}$, $\frac{1}{33}$, which he attributes to the premature marriages, to avoid the military levies; and on the whole, concludes with mentioning 25 as the proper multiplier. And yet, if we make use of this multiplier, we shall get a population under 25 millions, instead of 28 millions. It is true, indeed, that no just inferences can be drawn from the births of a single year; but, as these are the only births referred to, the contradiction is obvious. Perhaps the future returns may solve the difficulty, and the births in the following years be greater; but I am inclined to think, as I have mentioned in the text, that the greatest increase in the proportion of births was before the year IX. and probably during the first six or seven years of the republic, while married persons were exempt from the military conscriptions. If the state of the agricultural part of the nation has been improved by the revolution, I am strongly inclined to believe that the proportions both of births and deaths will be found to diminish. In so fine a climate as France nothing but the very great misery of the lower classes could occasion a mortality of $\frac{1}{30}$, and a proportion of births as $\frac{1}{25}\frac{3}{4}$, according to Necker's calculations. And consequently, upon this supposition, the births for the year IX. may not be incorrect, and in future, the births and deaths may not bear so large a proportion to the population. The contrast between France and England in this respect is quite wonderful.

The part of this work relating to population is not drawn up with much knowledge of the subject. One remark is very curious. It is observed that the proportion of marriages to the population is as 1 to 110, and of births as 1 to 25; from which it is inferred that one-fourth of the born live to marry. If this inference were just, France would soon be depopulated.

In calculating the value of lives, the author makes use of Buffon's tables, which are entirely incorrect, being founded principally on registers taken from the villages round Paris. They make the probability of life at birth only a little above eight years; which, taking the towns and the country together, is very short of the just average.

Scarcely anything worth noticing has been added in this work to the details given in the Essay of Peuchet, which I have already frequently referred to. On the whole I have not seen sufficient grounds to make me alter any of my conjectures in this chapter, though probably they are not well founded. Indeed, in adopting Sir F. d'Ivernois's calculations respecting the actual loss of men during the revolution, I never thought myself borne out by facts; but the reader will be aware that I adopted them rather for the sake of illustration than from supposing them strictly true.

[1] Essai de Peuchet, p. 28. It is highly probable that this increase of illegitimate births occasioned a more than usual number of children to be exposed in those dreadful receptacles, *les Hôpitaux des Enfans trouvés*, as noticed by Sir Francis d'Ivernois; but probably this cruel custom was confined to particular districts, and the number exposed, upon the whole, might bear no great proportion to the sum of all the births.

in the field of battle and the hospitals that an account can be taken of the lives which a revolution or a war has cost. The number of men it has killed is of much less importance than the number of children which it has prevented, and will still prevent, from coming into the world. This is the deepest wound which the population of France has received."—"Supposing," he says, "that, of the whole number of men destroyed, only two millions had been united to as many females: according to the calculation of Buffon, these two millions of couples ought to bring into the world twelve millions of children, in order to supply at the age of thirty-nine, a number equal to that of their parents. This is a point of view in which the consequences of such a destruction of men become almost incalculable; because they have much more effect with regard to the twelve millions of children, which they prevent from coming into existence, than with regard to the actual loss of the two millions and a half of men for whom France mourns. It is not till a future period that she will be able to estimate this dreadful breach." [1]

And yet, if the foregoing reasonings are well founded, France may not have lost a single birth by the revolution. She has the most just reason to mourn the two millions and a half of individuals which she may have lost, but not their posterity; because, if these individuals had remained in the country, a proportionate number of children, born of other parents, which are now living in France, would not have come into existence. If, in the best governed country in Europe, we were to mourn the posterity which is prevented from coming into being, we should always wear the habit of grief.

It is evident that the constant tendency of the births in every country to supply the vacancies made by death, cannot, in a moral point of view, afford the slightest shadow of excuse for the wanton sacrifice of men. The positive evil that is committed in this case, the pain, misery, and wide-spreading desolation and sorrow, that are occasioned to the existing inhabitants, can by no means be counterbalanced by the consideration, that the numerical breach in the population will be rapidly repaired. We can have no other right, moral or political, except that of the most urgent necessity, to exchange the lives of beings in the full vigour of their enjoyments for an equal number of helpless infants.

It should also be remarked that, though the numerical population of France may not have suffered by the revolution, yet, if

[1] Tableau des Pertes, etc., c. ii. p. 13, 14.

her losses have been in any degree equal to the conjectures on the subject, her military strength cannot be unimpaired. Her population at present must consist of a much greater proportion than usual of women and children; and the body of unmarried persons, of a military age, must be diminished in a very striking manner. This indeed is known to be the case, from the returns of the prefects which have already been received.

It has appeared that the point at which the drains of men will begin essentially to affect the population of a country is, when the original body of unmarried persons is exhausted, and the annual demands are greater than the excess of the number of males, rising annually to the age of puberty, above the number wanted to complete the usual proportion of annual marriages. France was probably at some distance from this point at the conclusion of the war; but in the present state of her population, with an increased proportion of women and children, and a great diminution of males of a military age, she could not make the same gigantic exertions, which were made at one period, without trenching on the sources of her population.

At all times the number of males of a military age in France was small in proportion to the population, on account of the tendency to marriage,[1] and the great number of children. Necker takes particular notice of this circumstance. He observes, that the effect of the very great misery of the peasantry is to produce a dreadful mortality of infants under three or four years of age; and the consequence is, that the number of young children will always be in too great a proportion to the number of grown-up people. A million of individuals, he justly observes, will in this case neither present the same military force nor the same capacity of labour, as an equal number of individuals in a country where the people are less miserable.[2]

Switzerland, before the revolution, could have brought into the field, or have employed in labour appropriate to grown-up persons, a much greater proportion of her population than France at the same period.[3]

[1] The proportion of marriages to the population in France, according to Necker, is 1 to 113, tom. i. c. ix. p. 255.

[2] De l'Administration des Finances, tom. i. c. ix. p. 263.

[3] Since I wrote this chapter, I have had an opportunity of seeing the *Analyse des Procès Verbaux des Conseils Généraux de Département*, which gives a very particular and highly curious account of the internal state of France for the year VIII. With respect to the population, out of 69 departments, the reports from which are given, in 16 the population is supposed to be increased; in 42 diminished; in 9 stationary; and in 2 the active population is said to be diminished, but the numerical to remain

For the state of population in Spain, I refer the reader to the valuable and entertaining travels of Mr. Townsend in that country, in which he will often find the principle of population

the same. It appears, however, that most of these reports are not founded on actual enumeration; and without such positive data, the prevailing opinions on the subject of population, together with the necessary and universally acknowledged fact of a very considerable diminution in the males of a military age, would naturally dispose people to think that the numbers upon the whole must be diminished. Judging merely from appearances, the substitution of a hundred children for a hundred grown-up persons would certainly not produce the same impression with regard to population. I should not be surprised, therefore, if, when the enumerations for the year IX. are completed, it should appear that the population upon the whole has not diminished. In some of the reports *l'aisance générale répandue sur le peuple*, and *la division des grands propriétés*, are mentioned as the causes of increase; and almost universally, *les mariages prématurés*, and *les mariages multipliés par la crainte des loix militaires*, are particularly noticed.

With respect to the state of agriculture, out of 78 reports, 6 are of opinion that it is improved; 10, that it is deteriorated: 70 demand that it should be encouraged in general; 32 complain *de la multiplicité des défrichemens;* and 12 demand *des encouragemens pour les défrichemens*. One of the reports mentions, *la quantité prodigieuse de terres vagues mise en culture depuis quelque tems, et les travaux multipliés, au delà de ce que peuvent exécuter les bras employés en agriculture;* and others speak of *les défrichemens multipliés, qui ont eu lieu depuis plusieurs années*, which appeared to be successful at first; but it was soon perceived that it would be more profitable to cultivate less, and cultivate well. Many of the reports notice the cheapness of corn, and the want of sufficient vent for this commodity; and in the discussion of the question respecting the division of the *biens communaux*, it is observed, that, "le partage, en opérent le défrichement de ces biens, a sans doute produit une augmentation réelle de denrées, mais d'un autre côté, les vaines pâtures n'existent plus, et les bestiaux sont peut-être diminués." On the whole therefore I should be inclined to infer that, though the agriculture of the country does not appear to have been conducted judiciously so as to obtain a large neat produce, yet the gross produce had by no means been diminished during the revolution; and that the attempt to bring so much new land under cultivation had contributed to make the scarcity of labourers still more sensible. And if it be allowed that the food of the country did not decrease during the revolution, the high price of labour, which is very generally noticed, must have operated as a most powerful encouragement to population among the labouring part of the society.

The land-tax, or *contribution foncière*, is universally complained of; indeed it appears to be extremely heavy, and to fall very unequally. It was intended to be only a fifth of the neat produce; but, from the unimproved state of agriculture in general, the number of small proprietors, and particularly the attempt to cultivate too much surface in proportion to the capital employed, it often amounts to a fourth, a third, or even a half. When property is so much divided that the rent and profit of a farm must be combined, in order to support a family upon it, a land-tax must necessarily greatly impede cultivation; though it has little or no effect of this kind when farms are large, and let out to tenants, as is most frequently the case in England. Among the impediments to agriculture mentioned in the reports, the too great division of lands from the new laws of succession is noticed. The partition of some of the great domains would probably contribute to the improvement of agriculture; but

very happily illustrated. I should have made it the subject of a distinct chapter, but was fearful of extending this part of the work too much, and of falling almost unavoidably into too many

subdivisions of the nature here alluded to would certainly have a contrary effect, and would tend most particularly to diminish neat produce, and make a land-tax both oppressive and unproductive. If all the land in England were divided into farms of £20 a year, we should probably be more populous than we are at present: but as a nation we should be extremely poor, and should be under a total inability of maintaining the same number of manufactures or collecting the same taxes as at present. All the departments demand a diminution of the *contribution foncière* as absolutely necessary to the prosperity of agriculture.

Of the state of the hospitals and charitable establishments, of the prevalence of beggary and the mortality among the exposed children, a most deplorable picture is drawn in almost all the reports; from which we should at first be disposed to infer a greater degree of poverty and misery among all the lower classes of people in general. It appears, however, that the hospitals and charitable establishments lost almost the whole of their revenues during the revolution; and this sudden subtraction of support from a great number of people who had no other reliance, together with the known failure of manufactures in the towns, and the very great increase of illegitimate children, might produce all the distressing appearances described in the reports, without impeaching the great fact of the meliorated condition of agricultural labourers in general, necessarily arising from the acknowledged high price of labour and comparative cheapness of corn; and it is from this part of the society that the effective population of a country is principally supplied. If the poor's rates of England were suddenly abolished, there would undoubtedly be the most complicated distress among those who were before supported by them; but I should not expect that either the condition of the labouring part of the society in general, or the population of the country, would suffer from it. As the proportion of illegitimate children in France has risen so extraordinarily as from $\frac{1}{77}$ of all the births to $\frac{1}{11}$, it is evident that more might be abandoned in hospitals, and more out of these die than usual, and yet a more than usual number be reared at home, and escape the mortality of those dreadful receptacles. It appears that from the low state of the funds in the hospitals the proper nurses could not be paid, and numbers of children died from absolute famine. Some of the hospitals at last very properly refused to receive any more.

The reports, upon the whole, do not present a favourable picture of the internal state of France; but something is undoubtedly to be attributed to the nature of these reports, which, consisting as they do of observations explaining the state of the different departments, and of particular demands, with a view to obtain assistance or relief from government, it is to be expected that they should lean rather to the unfavourable side. When the question is respecting the imposition of new taxes, or the relief from old ones, people will generally complain of their poverty. On the subject of taxes, indeed, it would appear as if the French government must be a little puzzled. For though it very properly recommended to the *Conseils généraux* not to indulge in vague complaints, but to mention specific grievances, and propose specific remedies, and particularly not to advise the abolition of one tax without suggesting another; yet all the taxes appear to me to be reprobated, and most frequently in general terms, without the proposal of any substitute. *La contribution foncière, la taxe mobiliaire, les barrières, les droits de douane,* all excite bitter complaints; and the only new substitute that struck me was a tax upon game, which, being at present almost extinct in France, cannot be expected to yield a

repetitions, from the necessity of drawing the same kind of inference from so many different countries. I could expect, besides, to add very little to what has been so well done by Mr. Townsend.

revenue sufficient to balance all the rest. The work, upon the whole, is extremely curious; and as showing the wish of the government to know the state of each department, and to listen to every observation and proposal for its improvement, is highly creditable to the ruling power. It was published for a short time; but the circulation of it was soon stopped and confined to the ministers, *les conseils généraux*, etc. Indeed the documents are evidently more of a private than of a public nature, and certainly have not the air of being intended for general circulation.

CHAPTER VII

OF THE CHECKS TO POPULATION IN FRANCE—*continued*

I HAVE not thought it advisable to alter the conjectural calculations and suppositions of the preceding chapter, on account of the returns of the prefects for the year IX., as well as some returns published since by the government in 1813, having given a smaller proportion of births than I had thought probable; first because these returns do not contain the early years of the revolution, when the encouragment to marriage and the proportion of births might be expected to be the greatest; and secondly, because they still seem fully to establish the main fact, which it was the object of the chapter to account for, namely, the undiminished population of France, notwithstanding the losses sustained during the revolution; although it may have been effected rather by a decreased proportion of deaths than an increased proportion of births.

According to the returns of the year IX., the proportions of the births, deaths, and marriages, to the whole population, are as follows:—

Births.	Deaths.	Marriages.
1 in 33	1 in 38½	1 in 157 [1]

But these are in fact only the proportions of one year, from which no certain inference can be drawn. They are also applied to a population between three and four millions greater than was contained in ancient France, which population may have always had a smaller proportion of births, deaths, and marriages; and further, it appears highly probable from some of the statements in the *Analyse des Procès Verbaux*, that the registers had not been

[1] See a valuable note of M. Prevost of Geneva to his translation of this work, vol. ii. p. 88. M. Prevost thinks it probable that there are omissions in the returns of the births, deaths, and marriages for the year IX. He further shows that the proportion of the population to the square league for Old France should be 1014, and not 1086. But if there is reason to believe that there are omissions in the registers, and that the population is made too great, the real proportions will be essentially different from those which are here given.

very carefully kept. Under these circumstances, they cannot be considered as proving what the numbers imply.

In the year XI., according to the Statistique Elémentaire by Peuchet, published subsequently to his *Essai*, an inquiry was instituted under the orders of M. Chaptal for the express purpose of ascertaining the average proportion of births to the population;[1] and such an inquiry, so soon after the returns of the year IX., affords a clear proof that these returns were not considered by the minister as correct. In order to accomplish the object in view, choice was made of those communes in 30 departments distributed over the whole surface of France, which were likely to afford the most accurate returns. And these returns for the year VIII., IX., and X., gave a proportion of births as 1 in 28.35; of deaths as 1 in 30.09; and of marriages as 1 in 132.078.

It is observed by M. Peuchet that the proportion of population to the births is here much greater than had been formerly assumed, but he thinks that, as this calculation had been made from actual enumerations, it should be adopted in preference.

The returns published by the government in 1813 make the population of ancient France 28,786,911, which, compared with 28,000,000, the estimated population of the year IX., show an increase of about 800,000 in the 11 years from 1802 to 1813.

No returns of marriages are given, and the returns of births and deaths are given only for fifty departments.

In these fifty departments, during the ten years beginning with 1802 and ending with 1811, the whole number of births amounted to 5,478,669, and of deaths to 4,696,857, which, on a population of 16,710,719, indicates a proportion of births as 1 in 30½, and of deaths as 1 in 35½.

It is natural to suppose that these fifty departments were chosen on account of their showing the greatest increase. They contain indeed nearly the whole increase that had taken place in all the departments from the time of the enumeration in the year IX.; and consequently the population of the other departments must have been almost stationary. It may further be reasonably conjectured that the returns of marriages were not published on account of their being considered as unsatisfactory, and showing a diminution of marriages, and an increased proportion of illegitimate births.

From these returns, and the circumstances accompanying them, it may be concluded, that whatever might have been the

[1] P. 331. Paris, 1805.

real proportion of births before the revolution, and for six or seven subsequent years, when the *mariages prématurés* are alluded to in the Procès Verbaux, and proportions of births as 1 in 21, 22, and 23 are mentioned in the Statistique Générale, the proportions of births, deaths, and marriages are now all considerably less than they were formerly supposed to be.[1]

It has been asked whether, if this fact be allowed, it does not clearly follow that the population was incorrectly estimated before the revolution, and that it has been diminished rather than increased since 1792? To this question I should distinctly answer, that it does not follow. It has been seen, in many of the preceding chapters, that the proportions of births, deaths, and marriages are extremely different in different countries, and there is the strongest reason for believing that they are very different in the same country at different periods, and under different circumstances.

That changes of this kind have taken place in Switzerland has appeared to be almost certain. A similar effect from increased healthiness in our own country may be considered as an established fact. And if we give any credit to the best authorities that can be collected on the subject, it can scarcely be doubted that the rate of mortality has diminished, during the last one or two hundred years, in almost every country in Europe. There is nothing therefore that ought to surprise us in the mere fact of the same population being kept up, or even a decided increase taking place, under a smaller proportion of births, deaths, and marriages. And the only question is, whether the actual circumstances of France seem to render such a change probable.

Now it is generally agreed that the condition of the lower classes of people in France before the revolution was very wretched. The wages of labour were about 20 sous, or tenpence a day, at a time when the wages of labour in England were nearly seventeenpence, and the price of wheat of the same quality in the two countries was not very different. Accordingly Arthur Young represents the labouring classes of France, just at the commencement of the revolution, as "76 per cent. worse fed, worse clothed, and worse supported, both in sickness and

[1] In the year 1792 a law was passed extremely favourable to early marriages. This was repealed in the year XI., and a law substituted which threw great obstacles in the way of marriage, according to Peuchet (p. 234). These two laws will assist in accounting for a small proportion of births and marriages in the ten years previous to 1813, consistently with the possibility of a large proportion in the first six or seven years after the commencement of the revolution.

health, than the same classes in England."[1] And though this statement is perhaps rather too strong, and sufficient allowance is not made for the real difference of prices, yet his work everywhere abounds with observations which show the depressed condition of the labouring classes in France at that time, and imply the pressure of the population very hard against the limits of subsistence.

On the other hand, it is universally allowed that the condition of the French peasantry has been decidedly improved by the revolution and the division of the national domains. All the writers who advert to the subject notice a considerable rise in the price of labour, partly occasioned by the extension of cultivation, and partly by the demands of the army. In the Statistique Elémentaire of Peuchet, common labour is stated to have risen from 20 to 30 sous,[2] while the price of provisions appears to have remained nearly the same; and Mr. Birbeck, in his late Agricultural Tour in France,[3] says that the price of labour without board is twenty *pence* a day, and that provisions of all kinds are full as cheap again as in England. This would give the French labourer the same command of subsistence as an English labourer would have with three shillings and fourpence a day. But at no time were the wages of common day-labour in England so high as three shillings and fourpence.

Allowing for some errors in these statements, they are evidently sufficient to establish a very marked improvement in the condition of the lower classes of people in France. But it is next to a physical impossibility that such a relief from the pressure of distress should take place without a diminution in the rate of mortality; and if this diminution in the rate of mortality has not been accompanied by a rapid increase of population, it must necessarily have been accompanied by a smaller proportion of births. In the interval between 1802 and 1813 the population seems to have increased, but to have increased slowly. Consequently a smaller proportion of births, deaths, and marriages, or the more general operation of prudential restraint, is exactly what the circumstances would have led us to expect. There is perhaps no proposition more incontrovertible than this, that, in two countries, in which the rate of increase, the natural healthiness of climate, and the state of towns and manufactures are supposed to be nearly the same, the one in which the pressure of poverty is the greatest will have the greatest proportion of births, deaths, and marriages.

[1] Young's Travels in France, vol. i. p. 437. [2] P. 391. [3] P. 13.

It does not then by any means follow, as has been supposed, that because since 1802 the proportion of births in France has been as 1 in 30, Necker ought to have used 30 as his multiplier instead of $25\frac{3}{4}$. If the representations given of the state of the labouring classes in France before and since the revolution be in any degree near the truth, as the march of the population in both periods seems to have been nearly the same, the present proportion of births could not have been applicable at the period when Necker wrote. At the same time it is by no means improbable that he took too low a multiplier. It is hardly credible under all circumstances that the population of France should have increased in the interval between 1785 and 1802 so much as from $25\frac{1}{2}$ millions to 28. But if we allow that the multiplier might at that time have been 27 instead of $25\frac{3}{4}$, it will be allowing as much as is in any degree probable, and yet this will imply an increase of nearly two millions from 1785 to 1813; an increase far short of the rate that has taken place in England, but still sufficient amply to show the force of the principle of population in overcoming obstacles apparently the most powerful.

With regard to the question of the increase of births in the six or seven first years after the commencement of the revolution, there is no probability of its ever being determined.

In the confusion of the times, it is scarcely possible to suppose that the registers should have been regularly kept; and as they were not collected in the year IX., there is no chance of their being brought forward in a correct state at a subsequent period.

1825

Subsequent to the last edition of this work, further details have appeared respecting the population of France.

Since 1817, regular returns have been made of the annual births, deaths, and marriages over the whole of the territory comprised in the limits of France, as settled in 1814 and 1815; and an enumeration was made of the population in 1820.

In the *Annuaire* of the *Bureau des Longitudes* for 1825, the numbers of births, deaths, and marriages are given for six years ending with 1822. The sum of these are:

Births.	Deaths.	Marriages.	Excess of births above deaths.
5,747,249	4,589,089	1,313,502	1,158,160

The annual average:

Births.	Deaths.	Marriages.	Average Excess of births.
957,875	764,848	218,917	193,027

The population in 1820, according to an enumeration in each department, was 30,451,187.

From these numbers it appears that the proportion of annual births to the population is as 1 to 31.79, or nearly $\frac{1}{32}$; the annual mortality as 1 to 39.81, or nearly $\frac{1}{40}$; the proportion of annual marriages to the population is as 1 to 139; the proportion of births to deaths as 125.23 to 100, or very nearly as 5 to 4; and the proportion of marriages to births as 1 to 4.37. The proportion of illegitimate to legitimate births is as 1 to 14.6; the proportion of male to female births as 16 to 15; and the proportion of the annual excess of the births above the deaths to the whole population, which, if the returns are accurate, determines the rate of increase as 1 to 157.

To what degree the returns of the births, deaths, and marriages in the 6 years ending with 1822 are accurate, it is impossible to say. There is a regularity in them which has a favourable appearance. We well know, however, that with the same appearance of regularity there are great omissions in the births and deaths of our own registers. This is at once proved by the circumstance of the excess of the births above the deaths in the interval between two enumerations falling considerably short of the increase of population which appears by such enumerations to have taken place. The enumerations in France during the last twenty-five years have not been so regular, or so much to be depended upon, as those in England. The one in 1813, before noticed, may, however, be compared with that in 1820, and if they are both equally near the truth, it will appear that the population of France during the seven years from 1813 to 1820 must have increased considerably faster than during the six years ending with 1822, as determined by the excess of the births above the deaths. The whole of this excess during these six years, as above stated, was 1,158,160, the annual average of which is 193,027, which, compared with the mean population, or the population of 1820, reduced by the increase of a year, will give a proportion of annual increase to the population as 1 to about 156; and this proportion of the annual excess of the births above the deaths, to the population, will, according to Table II. at the end of Ch. xi. Book ii., give a rate of increase which would double the population in about 108 years.

On the other hand, as the population of Old France in 1813 was 28,786,911, and in 1820, 30,451,187, the difference or the increase of population during the seven years being 1,664,276, the annual average increase will be 237,753, instead of 193,026; and this greater annual increase, compared with the mean population of the seven years, will be as 1 to 124, instead of 1 to 156, and the rate of increase will be such as would double the population in about 86 years, instead of 108, showing the probability of considerable omissions in the returns of births and deaths in the 6 years ending with 1822. If, indeed, the two enumerations can be considered as equally near the truth, as there is no reason for supposing that any great difference in the proportion of births could have occurred in the three years preceding 1817, it follows that the French registers require the same kind of correction, though not to the same extent, as our own. In a subsequent chapter I have supposed that the returns of the births for England and Wales are deficient $\frac{1}{6}$, and of the burials $\frac{1}{12}$. This correction applied to the French returns would exceed what is necessary to account for the increase between 1813 and 1820. But if we suppose the births to be deficient $\frac{1}{10}$, and the deaths $\frac{1}{20}$, the proportion of the births to the population will then be $\frac{1}{29} \cdot 1$, and the proportion of the deaths $\frac{1}{38} \cdot 1$. These proportions will make the annual excess of the births above the deaths, compared with the population, as 1 to a little above 123, which, after a slight allowance for deaths abroad, will give the same period of doubling or the same rate of increase as that which took place in France between 1813 and 1820, supposing both enumerations to be equally near the truth.

It is worthy of remark, that, after making the above allowances for omissions in the returns of births and deaths, the proportion of deaths appears to be smaller than in any of the registers before collected; and as the proportion of the births is also smaller than either before the revolution, or in the returns from the 30 departments in the years VIII., IX., and X. before noticed: and as there is every reason to believe that there were great omissions in the general returns of the year IX. and that the omissions in the returns from the 50 departments in 1813 were not fewer than in the later registers, it may fairly be presumed that the proportion of births has diminished notwithstanding the increased rate at which the population has been proceeding of late years. This increased rate appears to be owing to a diminished mortality, occasioned by the improved situation of the labouring classes since the revolution, and aided

probably by the introduction of vaccination. It shows that an acceleration in the rate of increase is quite consistent with a diminution in the proportion of births, and that such a diminution is likely to take place under a diminished mortality from whatever cause or causes arising.

As a curious and striking proof of the error into which we should fall, in estimating the population of countries at different periods by the increase of births, it may be remarkable that, according to Necker, the annual births in France on an average of six years, ending with 1780, were 958,586. The births for the same number of years ending with 1822 were, as above stated, 957,875. Estimating therefore the population by the births, it would appear that in 42 years it had rather diminished than increased, whereas, by enumerations, there is every reason to believe that it has increased in that time nearly four millions.

CHAPTER VIII

OF THE CHECKS TO POPULATION IN ENGLAND

THE most cursory view of society in this country must convince us, that throughout all ranks the preventive check to population prevails in a considerable degree. Those among the higher classes, who live principally in towns, often want the inclination to marry, from the facility with which they can indulge themselves in an illicit intercourse with the sex. And others are deterred from marrying by the idea of the expenses that they must retrench, and the pleasures of which they must deprive themselves, on the supposition of having a family. When the fortune is large, these considerations are certainly trivial; but a preventive foresight of this kind has objects of much greater weight for its contemplation as we go lower.

A man of liberal education, with an income only just sufficient to enable him to associate in the rank of gentlemen, must feel absolutely certain that, if he marry and have a family, he shall be obliged to give up all his former connections. The woman, whom a man of education would naturally make the object of his choice, is one brought up in the same habits and sentiments with himself, and used to the familiar intercourse of a society totally different from that to which she must be reduced by marriage. Can a man easily consent to place the object of his affection in a situation so discordant, probably, to her habits and inclinations? Two or three steps of descent in society, particularly at this round of the ladder, where education ends and ignorance begins, will not be considered by the generality of people as a chimerical, but a real evil. If society be desirable, it surely must be free, equal, and reciprocal society, where benefits are conferred as well as received, and not such as the dependent finds with his patron, or the poor with the rich.

These considerations certainly prevent many in this rank of life from following the bent of their inclinations in an early attachment. Others, influenced either by a stronger passion or a weaker judgment, disregard these considerations; and it would be hard, indeed, if the gratification of so delightful a passion as virtuous love did not sometimes more than counter-

balance all its attendant evils. But I fear it must be acknowledged that the more general consequences of such marriages are rather calculated to justify than disappoint the forebodings of the prudent.

The sons of tradesmen and farmers are exhorted not to marry, and generally find it necessary to comply with this advice, till they are settled in some business or farm, which may enable them to support a family. These events may not perhaps occur till they are far advanced in life. The scarcity of farms is a very general complaint; and the competition in every kind of business is so great, that it is not possible that all should be successful. Among the clerks in counting-houses, and the competitors for all kinds of mercantile and professional employment, it is probable that the preventive check to population prevails more than in any other department of society.

The labourer who earns eighteenpence or two shillings a day, and lives at his ease as a single man, will hesitate a little before he divides that pittance among four or five which seems to be not more than sufficient for one. Harder fare and harder labour he would perhaps be willing to submit to for the sake of living with the woman he loves; but he must feel conscious that, should he have a large family and any ill fortune whatever, no degree of frugality, no possible exertion of his manual strength, would preserve him from the heart-rending sensation of seeing his children starve, or of being obliged to the parish for their support. The love of independence is a sentiment that surely none would wish to see eradicated; though the poor-laws of England, it must be confessed, are a system of all others the most calculated gradually to weaken this sentiment, and in the end will probably destroy it completely.

The servants who live in the families of the rich have restraints yet stronger to break through in venturing upon marriage. They possess the necessaries, and even the comforts of life, almost in as great plenty as their masters. Their work is easy and their food luxurious, compared with the work and food of the class of labourers; and their sense of dependence is weakened by the conscious power of changing their masters if they feel themselves offended. Thus comfortably situated at present, what are their prospects if they marry? Without knowledge or capital, either for business or farming, and unused and therefore unable to earn a subsistence by daily labour, their only refuge seems to be a miserable alehouse, which certainly offers no very enchanting prospect of a happy evening to their lives. The

greater number of them, therefore, deterred by this uninviting view of their future situation, content themselves with remaining single where they are.

If this sketch of the state of society in England be near the truth, it will be allowed that the preventive check to population operates with considerable force throughout all the classes of the community. And this observation is further confirmed by the abstracts from the registers returned in consequence of the Population Act [1] passed in 1800.

The results of these abstracts show that the annual marriages in England and Wales are to the whole population as 1 to $123\frac{1}{5}$,[2] a smaller proportion of marriages than is to be found in any of the countries which have been examined, except Norway and Switzerland.

In the earlier part of the last century, Dr. Short estimated this proportion at about 1 to 115.[3] It is probable that this calculation was then correct; and the present diminution in the proportion of marriages, notwithstanding an increase of population more rapid than formerly, owing to the more rapid progress of commerce and agriculture, is partly a cause, and partly a consequence, of the diminished mortality observed of late years.

The returns of the marriages, pursuant to the late act, are supposed to be less liable to the suspicion of inaccuracy than any other parts of the registers.

Dr. Short, in his *New Observations on Town and Country Bills of Mortality*, says, he will "conclude with the observation of an eminent Judge of this nation, that the growth and increase of mankind is more stinted from the cautious difficulty people make to enter on marriage, from the prospect of the trouble and expenses in providing for a family, than from anything in the

[1] This chapter was written in 1802, just after the first enumeration, the results of which were published in 1801.

[2] Observ. on the Results of the Population Act, p. 11, printed in 1801. The answers to the Population Act have at length happily rescued the question of the population of this country from the obscurity in which it had been so long involved, and have afforded some very valuable data to the political calculator. At the same time it must be confessed that they are not so complete as entirely to exclude reasonings and conjectures respecting the inferences which are to be drawn from them. It is earnestly to be hoped that the subject may not be suffered to drop after the present effort. Now that the first difficulty is removed, an enumeration every ten years might be rendered easy and familiar; and the registers of the births, deaths, and marriages might be received every year, or at least every five years. I am persuaded, that more inferences are to be drawn respecting the internal state of a country from such registers than we have yet been in the habit of supposing.

[3] New Observ. on Bills of Mortality, p. 265. 8vo. 1750.

nature of the species." And, in conformity to this idea, Dr. Short proposes to lay heavy taxes and fines on those who live single, for the support of the married poor.[1]

The observation of the eminent Judge is, with regard to the numbers which are prevented from being born, perfectly just; but the inference, that the unmarried ought to be punished, does not appear to be equally so. The prolific power of nature is very far indeed from being called fully into action in this country. And yet when we contemplate the insufficiency of the price of labour to maintain a large family, and the amount of mortality which arises directly and indirectly from poverty: and add to this the crowds of children which are cut off prematurely in our great towns, our manufactories, and our workhouses; we shall be compelled to acknowledge, that, if the number born annually were not greatly thinned by this premature mortality, the funds for the maintenance of labour must increase with much greater rapidity than they have ever done hitherto in this country, in order to find work and food for the additional numbers that would then grow up to manhood.

Those, therefore, who live single, or marry late, do not by such conduct contribute in any degree to diminish the actual population; but merely to diminish the proportion of premature mortality, which would otherwise be excessive; and consequently in this point of view do not seem to deserve any very severe reprobation or punishment.

The returns of the births and deaths are supposed, on good grounds, to be deficient; and it will therefore be difficult to estimate, with any degree of accuracy, the proportion which they bear to the whole population.

If we divide the existing population of England and Wales by the average of burials for the five years ending in 1800, it would appear that the mortality was only 1 in 49;[2] but this is a proportion so extraordinarily small, considering the number of our great towns and manufactories, that it cannot be considered as approaching to the truth.

Whatever may be the exact proportion of the inhabitants of the towns to the inhabitants of the country, the southern part of this island certainly ranks in that class of states where this proportion is greater than 1 to 3; indeed there is ample reason to believe that it is greater than 1 to 2. According to the rule laid

[1] New Observ. on Bills of Mortality, p. 247. 8vo. 1750.

[2] The population is taken at 9,168,000, and the annual deaths at 186,000. (Obs. on the Results of Pop. Act, p. 6 and 9.)

down by Crome, the mortality ought consequently to be above 1 in 30;[1] according to Sussmilch, above 1 in 33.[2] In the *Observations on the Results of the Population Act*,[3] many probable causes of deficiency in the registry of the burials are pointed out; but no calculation is offered respecting the sum of these deficiencies, and I have no data whatever to supply such a calculation. I will only observe, therefore, that if we suppose them altogether to amount to such a number as will make the present annual mortality about 1 in 40, this must appear to be the lowest proportion of deaths that can well be supposed, considering the circumstances of the country; and, if true, would indicate a most astonishing superiority over the generality of other states, either in the habits of the people with respect to prudence and cleanliness, or in natural healthiness of situation.[4] Indeed, it seems to be nearly ascertained that both these causes, which tend to diminish mortality, operate in this country to a considerable degree. The small proportion of annual marriages before mentioned indicates that habits of prudence, extremely favourable to happiness, prevail through a large part of the community, in spite of the poor-laws; and it appears from the clearest evidence, that the generality of our country parishes are very healthy. Dr. Price quotes an account of Dr. Percival, collected from the ministers of different parishes and taken from positive enumerations, according to which, in some villages, only a 45th, a 50th, a 60th, a 66th, and even a 75th, part dies annually. In many of these parishes the births are to the deaths above 2 to 1, and in a single parish above 3 to 1.[5] These, however, are particular instances, and cannot be applied to the agricultural part of the country in general. In some of the flat situations, and particularly those

[1] Ueber die Bevölkerung der Europaischen Staaten, p. 127.
[2] Sussmilch, Göttliche Ordnung, vol. iii. p. 60. [3] P. 6.
[4] It is by no means surprising that our population should have been underrated formerly, at least by any person who attempted to estimate it from the proportion of births or deaths. Till the late Population Act no one could have imagined that the actual returns of annual deaths, which might naturally have been expected to be as accurate in this country as in others, would turn out to be less than a 49th part of the population. If the actual returns for France, even so long ago as the ten years ending with 1780, had been multiplied by 49, she would have appeared at that time to have a population of above 40 millions. The average of annual deaths was 818,491. Necker, de l'Administration des Finances, tom. i. c. ix. p. 255. 12mo. 1785.
[5] Price's Observ. on Revers. Paym. vol. ii. note, p. 10. First additional Essay, 4th edit. In particular parishes, private communications are perhaps more to be depended upon than public returns; because in general those clergymen only are applied to who are in some degree interested in the subject, and of course take more pains to be accurate.

near marshes, the proportions are found very different, and in a few the deaths exceed the births. In the 54 country parishes, the registers of which Dr. Short collected, choosing them purposely in a great variety of situations, the average mortality was as high as 1 in 37.[1] This is certainly much above the present mortality of our agricultural parishes in general. The period which Dr. Short took included some considerable epidemics, which may possibly have been above the usual proportion. But sickly seasons should always be included, or we shall fall into great errors. In 1056 villages of Brandenburgh, which Sussmilch examined, the mortality for six good years was 1 in 43; for 10 mixed years about 1 in 38½.[2] In the villages of England which Sir F. M. Eden mentions, the mortality seems to be about 1 in 47 or 48;[3] and in the late returns pursuant to the Population Act, a still greater degree of healthiness appears. Combining these observations together, if we take 1 in 46 or 1 in 48 as the average mortality of the agricultural part of the country, including sickly seasons, this will be the lowest that can be supposed with any degree of probability. But this porportion will certainly be raised to 1 in 40 when we blend it with the mortality of the towns and the manufacturing part of the community, in order to obtain the average for the whole kingdom.

The mortality in London, which includes so considerable a part of the inhabitants of this country, was, according to Dr. Price, at the time he made his calculations, 1 in 20¾; in Norwich 1 in 24; in Northampton 1 in 26½; in Newbury 1 in 27½;[4] in Manchester 1 in 28; in Liverpool 1 in 27½,[5] etc. He observes that the number dying annually in towns is seldom so low as 1 in 28, except in consequence of a rapid increase produced by an influx of people at those periods of life when the fewest die, which is the case with Manchester and Liverpool,[6] and other very flourishing manufacturing towns. In general he thinks that the mortality in great towns may be stated at from 1 in 19[7] to 1 in 22 and 23; in moderate towns, from 1 in 24 to 1 in 28; and in the country villages, from 1 in 40 to 1 in 50.[8]

The tendency of Dr. Price to exaggerate the unhealthiness of towns may perhaps be objected to these statements; but the

[1] New Observations on Bills of Mortality, table ix. p. 133.
[2] Göttliche Ordnung, vol. i. c. ii. s. xxi. p. 74.
[3] Estimate of the Number of Inhabitants in Great Britain.
[4] Price's Observ. on Revers. Paym. vol. i. note, p. 272.
[5] Id. vol. ii. First additional Essay, note, p. 4.
[6] Id.
[7] The mortality at Stockholm was, according to Wargentin, 1 in 19.
[8] Observ. on Revers. Paym. vol. ii. First additional Essay, p. 4.

objection seems to be only of weight with regard to London. The accounts from the other towns which are given, are from documents which his particular opinions could not influence.[1] It should be remarked, however, that there is good reason to believe, that not only London, but the other towns in England, and probably also country villages, were at the time of these calculations less healthy than at present. Dr. William Heberden observes, that the registers of the ten years from 1759 to 1768,[2] from which Dr. Price calculated the probabilities of life in London, indicate a much greater degree of unhealthiness than the registers of late years. And the returns pursuant to the Population Act, even after allowing for great omissions in the burials, exhibit in all our provincial towns, and in the country, a degree of healthiness much greater than had before been calculated. At the same time I cannot but think that 1 in 31, the proportion of mortality for London mentioned in the *Observations on the Results of the Population Act*,[3] is smaller than the truth. Five thousand are not probably enough to allow for the omissions in the burials; and the absentees in the employments of war and commerce are not sufficiently adverted to. In estimating the proportional mortality the resident population alone should be considered.

There certainly seems to be something in great towns, and even in moderate towns, peculiarly unfavourable to the very early stages of life; and the part of the community on which the mortality principally falls, seems to indicate that it arises more from the closeness and foulness of the air, which may be supposed to be unfavourable to the tender lungs of children, and the greater confinement which they almost necessarily experience, than from the superior degree of luxury and debauchery usually and justly attributed to towns. A married pair with the best constitutions, who lead the most regular and quiet life, seldom find that their children enjoy the same health in towns as in the country.

In London, according to former calculations, one half of the born died under three years of age; in Vienna and Stockholm under two; in Manchester under five; in Norwich under five;

[1] An estimate of the population or mortality of London, before the late enumeration, always depended much on conjecture and opinion, on account of the great acknowledged deficiencies in the registers; but this was not the case in the same degree with other towns here named. Dr. Price, in allusion to a diminishing population, on which subject it appears that he has so widely erred, says very candidly, that perhaps he may have been insensibly influenced to maintain an opinion once advanced.

[2] Increase and Decrease of Diseases, p. 32. 4to. 1801. [3] P. 13.

in Northampton under ten.[1] In country villages, on the contrary, half of the born live till thirty, thirty-five, forty, forty-six, and above. In the parish of Ackworth, in Yorkshire, it appears, from a very exact account kept by Dr. Lee of the ages at which all died there for 20 years, that half of the inhabitants live to the age of 46;[2] and there is little doubt that, if the same kind of account had been kept in some of those parishes before mentioned, in which the mortality is so small as 1 in 60, 1 in 66, and even 1 in 75, half of the born would be found to have lived to 50 or 55.

As the calculations respecting the ages to which half of the born live in towns depend more upon the births and deaths which appear in the registers than upon any estimates of the number of people, they are on this account less liable to uncertainty than the calculations respecting the proportion of the inhabitants of any place which dies annually.

To fill up the void occasioned by this mortality in towns, and to answer all further demands for population, it is evident that a constant supply of recruits from the country is necessary; and this supply appears in fact to be always flowing in from the redundant births of the country. Even in those towns where the births exceed the deaths, this effect is produced by the marriages of persons not born in the place. At a time when our provincial towns were increasing much less rapidly than at present, Dr. Short calculated that $\frac{9}{10}$ of the married were strangers.[3] Of 1618 married men, and 1618 married women, examined at the Westminster infirmary, only 329 of the men and 495 of the women had been born in London.[4]

Dr. Price supposes that London with its neighbouring parishes, where the deaths exceed the births, requires a supply of 10,000 persons annually. Graunt, in his time, estimated the supply for London alone at 6000;[5] and he further observes, that, let the mortality of the city be what it will, arising from plague, or any other great cause of destruction, it always fully repairs its loss in two years.[6]

As all these demands, therefore, are supplied from the country, it is evident that we should fall into a very great error, if we were to estimate the proportion of births to deaths for the whole kingdom by the proportion observed in country parishes, from which there must be such numerous emigrations.

[1] Price's Observ. on Revers. Paym. vol. i. p. 264-266. 4th edit.
[2] Id. vol. i. p. 268. [3] New Observations on Bills of Mortality, p. 76.
[4] Price's Observ. on Revers. Paym. vol. ii. p. 17.
[5] Short's New Observ., Abstract from Graunt, p. 277. [6] Id. p. 276.

We need not, however, accompany Dr. Price in his apprehensions that the country will be depopulated by these emigrations, at least as long as the funds for the maintenance of agricultural labour remain unimpaired. The proportion of births, as well as the proportion of marriages, clearly proves that, in spite of our increasing towns and manufactories, the demand on the country for people is by no means very pressing.

If we divide the present population of England and Wales by the average number of baptisms for the last five years,[1] it will appear that the baptisms are to the population as 1 to very nearly 36;[2] but it is supposed, with reason, that there are great omissions in the baptisms.

Dr. Short estimated the proportion of births to the population of England as 1 to 28.[3] In the agricultural report of Suffolk, the proportion of births to the population was calculated at 1 to 30. For the whole of Suffolk, according to the late returns, this proportion is not much less than 1 to 33.[4] According to a correct account of thirteen villages from actual enumerations, produced by Sir F. M. Eden, the proportion of births to the population was as 1 to 33; and according to another account on the same authority, taken from towns and manufacturing parishes, as 1 to $27\frac{3}{4}$.[5] If, combining all these circumstances, and adverting at the same time to the acknowledged deficiency in the registry of births, and the known increase of our population of late years, we suppose the true proportion of the births to the population to be as 1 to 30; then assuming the present mortality to be 1 in 40, as before suggested, we shall nearly keep the proportion of baptisms to burials which appears in the late returns. The births will be to the deaths as 4 to 3 or $13\frac{1}{3}$ to 10, a proportion more than sufficient to account for the increase of population which has taken place since the American war, after allowing for those who may be supposed to have died abroad.

[1] This was written before the omitted returns were added in 1810. These additions make the births in 1800 amount to 263,000, instead of 255,426, and increase the proportion of registered births to 1 in 35.—See the next chapter.

[2] Average Medium of baptisms for the last five years 255,426. Pop. 9,198,000. (Observ. on Results, p. 9.)

[3] New Observ. p. 267.

[4] In private inquiries, dissenters and those who do not christen their children will not of course be reckoned in the population; consequently such inquiries, as far as they extend, will more accurately express the true proportion of births; and we are fairly justified in making use of them, in order to estimate the acknowledged deficiency of births in the public returns.

[5] Estimate of the Number of Inhabitants in Great Britain, etc., p. 27.

In the *Observations on the Results of the Population Act* it is remarked that the average duration of life in England appears to have increased in the proportion of 117 to 100[1] since the year 1780. So great a change, in so short a time, if true, would be a most striking phenomenon. But I am inclined to suspect that the whole of this proportional diminution of burials does not arise from increased healthiness, but is occasioned, in part, by the greater number of deaths which must necessarily have taken place abroad, owing to the very rapid increase of our foreign commerce since this period; and to the great number of persons absent on naval and military employments, and the constant supply of fresh recruits necessary to maintain undiminished so great a force. A perpetual drain of this kind would certainly have a tendency to produce the effect observed in the returns, and might keep the burials stationary, while the births and marriages were increasing with some rapidity. At the same time, as the increase of population since 1780 is incontrovertible, and the present mortality extraordinarily small, I should still be disposed to believe that much the greater part of the effect is to be attributed to increased healthiness.

A mortality of 1 in 36 is perhaps too small a proportion of deaths for the average of the whole century; but a proportion of births to deaths as 12 to 10, calculated on a mortality of 1 in 36, would double the population of a country in 125 years, and is therefore as great a proportion of births to deaths as can be true for the average of the whole century. None of the late calculations imply a more rapid increase than this.

We must not suppose, however, that this proportion of births to deaths, or any assumed proportion of births and deaths to the whole population, has continued nearly uniform throughout the century. It appears from the registers of every country which have been kept for any length of time, that considerable variations occur at different periods. Dr. Short, about the middle of the century, estimated the proportion of births to deaths as 11 to 10;[2] and if the births were at the same time a twenty-eighth part of the population, the mortality was then as high as 1 in $30\frac{4}{5}$. We now suppose that the proportion of births to deaths is above 13 to 10; but if we were to assume this proportion as a criterion by which to estimate the increase of population for the next hundred years, we should probably fall into a very gross error.

[1] P. 6.

[2] New Observ. tables ii. and iii. p. 22 and 44; Price's Observ. on Revers. Paym. vol. ii. p. 311.

We cannot reasonably suppose that the resources of this country should increase for any long continuance with such rapidity as to allow of a permanent proportion of births to deaths as 13 to 10, unless indeed this proportion were principally caused by great foreign drains.

From all the data that could be collected, the proportion of births to the whole population of England and Wales has been assumed to be as 1 to 30; but this is a smaller proportion of births than has appeared in the course of this review to take place in any other country except Norway and Switzerland; and it has been hitherto usual with political calculators to consider a great proportion of births as the surest sign of a vigorous and flourishing state. It is to be hoped, however, that this prejudice will not last long. In countries circumstanced like America or Russia, or in other countries after any great mortality, a large proportion of births is a favourable symptom; but in the average state of a well-peopled territory there cannot well be a worse sign than a large proportion of births, nor can there well be a better sign than a small proportion.

Sir Francis d'Ivernois very justly observes that, "if the various states of Europe kept and published annually an exact account of their population, noting carefully in a second column the exact age at which the children die, this second column would show the relative merit of the government, and the comparative happiness of their subjects. A simple arithmetical statement would then perhaps be more conclusive than all the arguments that could be adduced." [1] In the importance of the inferences to be drawn from such tables, I fully agree with him; and to make these inferences, it is evident that we should attend less to the column expressing the number of children born, than to the column expressing the number which survived the age of infancy and reached manhood; and this number will almost invariably be the greatest where the proportion of the births to the whole population is the least. In this point we rank next after Norway and Switzerland, which, considering the number of our great towns and manufactories, is certainly a very extraordinary fact. As nothing can be more clear than that all our demands for population are fully supplied, if this be done with a small proportion of births, it is a decided proof of a very small mortality, a distinction on which we may justly pride ourselves. Should it appear from future investigation that I have made too great an allowance for omissions both in the births and in the

[1] Tableau des Pertes, etc., c. ii. p. 16.

burials, I shall be extremely happy to find that this distinction, which, other circumstances being the same, I consider as the surest test of happiness and good government, is even greater than I have supposed it to be. In despotic, miserable, or naturally unhealthy countries, the proportion of births to the whole population will generally be found very great.

On an average of the five years ending in 1800, the proportion of births to marriages is 347 to 100. In 1760, it was 362 to 100, from which an inference is drawn, that the registers of births, however deficient, were certainly not more deficient formerly than at present.[1] But a change of this nature, in the appearance of the registers, might arise from causes totally unconnected with deficiencies. If from the acknowledged greater healthiness of the latter part of the century, compared with the middle of it, a greater number of children survived the age of infancy, a greater proportion of the born would of course live to marry, and this circumstance would produce a greater present proportion of marriages compared with the births. On the other hand, if the marriages were rather more prolific formerly than at present, owing to their being contracted at an earlier age, the effect would be a greater proportion of births compared with the marriages. The operation of either or both of these causes would produce exactly the effect observed in the registers: and consequently from the existence of such an effect no inference can justly be drawn against the supposed increasing accuracy of the registers. The influence of the two causes just mentioned on the proportions of annual births to marriages will be explained in a subsequent chapter.

With regard to the general question, whether we have just grounds for supposing that the registry of births and deaths was more deficient in the former part of the century than in the latter part; I should say, that the late returns tend to confirm the suspicion of former inaccuracy, and to show that the registers of the earlier part of the century, in every point of view, afford very uncertain data on which to ground any estimates of past population. In the years 1710, 1720, and 1730, it appears from the returns that the deaths exceeded the births; and taking the six periods ending in 1750,[2] including the first half of the century, if we compare the sum of the births with the sum of the deaths, the excess of the births is so small as to be perfectly inadequate to account for the increase of a million, which, upon a calculation

[1] Observ. on the Results of the Population Act, p. 8.
[2] Population Abstracts, Parish Registers. Final summary, p. 455.

from the births alone, is supposed to have taken place in that time.[1] Consequently, either the registers are very inaccurate, and the deficiencies in the births greater than in the deaths; or these periods, each at the distance of ten years, do not express the just average. These particular years may have been more unfavourable with respect to the proportion of births to deaths than the rest; indeed one of them, 1710, is known to have been a year of great scarcity and distress. But if this suspicion, which is very probable, be admitted, so as to affect the six first periods, we may justly suspect the contrary accident to have happened with regard to the three following periods ending with 1780; in which thirty years it would seem, by the same mode of calculation, that an increase of a million and a half had taken place.[2] At any rate it must be allowed, that the three separate years, taken in this manner, can by no means be considered as sufficient to establish a just average; and what rather encourages the suspicion that these particular years might be more than usually favourable with regard to births is, that the increase of births from 1780 to 1785 is unusually small,[3] which would naturally be the case without supposing a slower progress than before, if the births in 1780 had been accidentally above the average.

On the whole, therefore, considering the probable inaccuracy of the earlier registers, and the very great danger of fallacy in drawing general inferences from a few detached years, I do not think that we can depend upon any estimates of past population, founded on a calculation from the births, till after the year 1780, when every following year is given, and a just average of the births may be obtained. As a further confirmation of this remark I will just observe, that in the final summary of the abstracts from the registers of England and Wales it appears that in the year 1790 the total number of births was 248,774, in the year 1795, 247,218, and in 1800, 247,147.[4] Consequently, if we had been estimating the population from the births, taken at three separate periods of five years, it would have appeared that the population during the last ten years had been regularly decreasing, though we have very good reason to believe that it has increased considerably.

In the *Observations on the Results of the Population Act*,[5] a table is given of the population of England and Wales throughout the last century, calculated from the births; but for the reasons given above, little reliance can be placed upon it; and for the popu-

[1] Observ. on the Results of the Population Act, p. 9. [2] Ibid.
[3] Ibid. [4] Population Abstracts, Parish Registers, p. 455. [5] P. 9.

lation at the revolution, I should be inclined to place more dependence on the old calculations from the number of houses.

It is possible, indeed, though not probable, that these estimates of the population at the different periods of the century may not be very far from the truth, because opposite errors may have corrected each other; but the assumption of the uniform proportion of births on which they are founded is false on the face of the calculations themselves. According to these calculations the increase of population was more rapid in the period from 1760 to 1780 than from 1780 to 1800; yet it appears that the proportion of deaths about the year 1780 was greater than in 1800 in the ratio of 117 to 100. Consequently the proportion of births before 1780 must have been much greater than in 1800, or the population in that period could not possibly have increased faster. This overthrows at once the supposition of anything like uniformity in the proportion of births.

I should indeed have supposed from the analogy of other countries, and the calculations of Mr. King and Dr. Short, that the proportion of births at the beginning and in the middle of the century was greater than at the end. But this supposition would, in a calculation from the births, give a smaller population in the early part of the century than is given in the *Results of the Population Act*, though there are strong reasons for supposing that the population there given is too small. According to Davenant, the number of houses in 1690 was 1,319,215, and there is no reason to think that this calculation erred on the side of excess. Allowing only five to a house instead of $5\frac{3}{5}$, which is supposed to be the proportion at present, this would give a population of above six millions and a half, and it is perfectly incredible that from this time to the year 1710 the population should have diminished nearly a million and a half. It is far more probable that the omissions in the births should have been much greater than at present, and greater than in the deaths; and this is further confirmed by the observation before alluded to, that in the first half of the century the increase of population, as calculated from the births, is much greater than is warranted by the proportion of births to deaths. In every point of view, therefore, the calculations from the births are little to be depended on.

It must indeed have appeared to the reader, in the course of this work, that registers of births or deaths, excluding any suspicion of deficiencies, must at all times afford very uncertain data for an estimate of population. On account of the varying

circumstances of every country, they are both precarious guides. From the greater apparent regularity of the births, political calculators have generally adopted them as the ground of their estimates in preference to the deaths. Necker, in estimating the population of France, observes that an epidemic disease, or an emigration, may occasion temporary differences in the deaths, and that therefore the number of births is the most certain criterion.[1] But the very circumstance of the apparent regularity of the births in the registers will now and then lead into great errors. If in any country we can obtain registers of burials for two or three years together, a plague or mortal epidemic will always show itself, from the very sudden increase of the deaths during its operation, and the still greater diminution of them afterwards. From these appearances, we should of course be directed not to include the whole of a great mortality in any very short term of years. But there would be nothing of this kind to guide us in the registers of births; and after a country had lost an eighth part of its population by a plague, an average of the five or six subsequent years might show an increase in the number of births, and our calculations would give the population the highest at the very time that it was the lowest. This appears very strikingly in many of Sussmilch's tables, and most particularly in a table for Prussia and Lithuania, which I shall insert in a subsequent chapter; where, in the year following to the loss of one-third of the population, the births were considerably increased, and in an average of five years but very little diminished; and this at a time when, of course, the country could have made but a very small progress towards recovering its former population.

We do not know indeed of any extraordinary mortality which has occurred in England since 1700; and there are reasons for supposing that the proportions of the births and deaths to the population during the last century have not experienced such great variations as in many countries on the continent; at the same time it is certain that the sickly seasons which are known to have occurred, would, in proportion to the degree of their fatality, produce similar effects; and the change which has been observed in the mortality of late years, should dispose us to believe that similar changes might formerly have taken place respecting the births, and should instruct us to be extremely cautious in applying the proportions, which are observed to be true at present, to past or future periods.

[1] De l'Administration des Finances, tom. i. c. ix. p. 252. 12 mo. 1785.

CHAPTER IX

OF THE CHECKS TO POPULATION IN ENGLAND—*continued*

THE returns of the Population Act in 1811 undoubtedly presented extraordinary results. They showed a great accelerated rate of progress, and a greatly improved healthiness of the people, notwithstanding the increase of the towns and the increased proportion of the population engaged in manufacturing employments. They thus furnished another striking instance of the readiness with which population starts forwards, under almost any weight, when the resources of a country are rapidly increasing.

The amount of the population in 1800, together with the proportions of births, deaths, and marriages given in the registers, had made it appear that the population had been for some time increasing at a rate rather exceeding what would result from a proportion of births to deaths as 4 to 3, with a mortality of 1 in 40.

These proportions would add to the population of a country every year 120th part; and if they were to continue, would, according to table ii. chap. xi., double the population in every successive period of 83½ years. This is a rate of progress which in a rich and well-peopled country might reasonably be expected to diminish rather than to increase. But instead of any such diminution, it appears that as far as 1810 it had been considerably accelerated.

In 1810, according to the returns from each parish, with the additions of $\frac{1}{30}$ for the soldiers, sailors, etc., the population of England and Wales was estimated at 10,488,000,[1] which, compared with 9,168,000, the population of 1800, estimated in a similar manner, shows an increase in the ten years of 1,320,000.

The registered baptisms during ten years were 2,878,906, and the registered burials 1,950,189. The excess of the births is therefore 928,717, which falls very considerably short of the increase shown by the two enumerations. This deficiency could only be occasioned either by the enumeration in 1800 being

[1] See the Population Abstracts published in 1811, and the valuable Preliminary Observations by Mr. Rickman.

below the truth, or by the inaccuracy of the registers of births and burials, or by the operation of these two causes combined; as it is obvious that, if the population in 1800 were estimated correctly, and the registers contained all the births and burials, the difference must exceed rather than fall short of the real addition to the population; that is, it would exceed it exactly by the number of persons dying abroad in the army, navy, etc.

There is reason to believe that both causes had a share in producing the effect observed, though the latter, that is, the inaccuracy of the registers, in much the greatest degree.

In estimating the population throughout the century,[1] the births have been assumed to bear the same proportion at all times to the number of people. It has been seen that such an assumption might often lead to a very incorrect estimate of the population of a country at different and distant periods. As the population, however, is known to have increased with great rapidity from 1800 to 1810, it is probable that the proportion of births did not essentially diminish during that period. But if, taking the last enumeration as correct, we compare the births of 1810 with the births of 1800, the result will imply a larger population in 1800 than is given in the enumeration for that year.

Thus the average of the last five years' births to 1810 is 297,000, and the average of the five years' births to 1800 is 263,000. But 297,000 is to 263,000 as 10,488,000, the population of 1810, to 9,287,000, which must therefore have been the population in 1800, if the proportion of births be assumed to be the same, instead of 9,198,000, the result of the enumeration. It is further to be observed that the increase of population from 1795 to 1800 is according to the table unusually small, compared with most of the preceding periods of five years. And a slight inspection of the registers will show that the proportion of births for five years from 1795, including the diminished numbers of 1796 and 1800, was more likely to be below than above the general average. For these reasons, together with the general impression on the subject, it is probable that the enumeration in 1800 was short of the truth, and perhaps the population at that time may be safely taken at as much as 9,287,000 at the least, or about 119,000 greater than the returns gave it.

But even upon this supposition, neither the excess of births above the deaths in the whole of the ten years, nor the proportion

[1] See a table of the population throughout the century, in page xxv. of the Preliminary Observations to the Population Abstracts, printed in 1811.

of births to deaths, as given in the registers, will account for an increase from 9,287,000 to 10,488,000. Yet it is not probable that the increase has been much less than is shown by the proportion of the births at the two periods. Some allowance must therefore necessarily be made for omissions in the registers of births and deaths, which are known to be very far from correct, particularly the registers of births.

There is reason to believe that there are few or no omissions in the register of marriages; and if we suppose the omissions in the births to be one-6th, this will preserve a proportion of the births to the marriages as 4 to 1, a proportion which appears to be satisfactorily established upon other grounds: [1] but if we are warranted in this supposition, it will be fair to take the omissions in the deaths at such a number as will make the excess of the births above the deaths in the ten years accord with the increase of population estimated by the increase of the births.

The registered births in the ten years, as was mentioned before, are 2,878,906, which increased by one-6th will be 3,358,723. The registered burials are 1,950,189, which increased by one-12th will be 2,112,704. The latter subtracted from the former will give 1,246,019 for the excess of births, and the increase of population in the ten years, which number added to 9,287,000, the corrected population of 1800, will give 10,533,019, forty-five thousand above the enumeration of 1810, leaving almost exactly the number which in the course of the ten years appears to have died abroad. This number has been calculated generally at about 4½ per cent. on the male births; but in the present case there are the means of ascertaining more accurately the number of males dying abroad during the period in question. In the last population returns the male and female births and deaths are separated; and from the excess of the male births above the female births, compared with the male and female deaths, it appears that forty-five thousand males died abroad.[2]

The assumed omissions therefore in the births and burials seem to answer so far very well.

It remains to see whether the same suppositions will give such a proportion of births to deaths, with such a rate of mortality, as

[1] See the Preliminary Observations on the Population Abstracts, p. xxvi.

[2] See Population Abstracts, 1811, page 196 of the Parish Register Abstract.

It is certainly very extraordinary that a smaller proportion of males than usual should appear to have died abroad from 1800 to 1810; but as the registers for this period seem to prove it, I have made my calculations accordingly.

will also account for an increase of numbers in ten years from 9,287,000 to 10,488,000.

If we divide the population of 1810 by the average births of the preceding five years, with the addition of one-6th, it will appear that the proportion of births to the population is as 1 to 30. But it is obvious that if the population be increasing with some rapidity, the average of births for five years, compared with the population at the end of such period, must give the proportion of births too small. And further, there is always a probability that a proportion which is correct for five years may not be correct for ten years. In order to obtain the true proportion applicable to the progress of population during the period in question, we must compare the annual average of the births for the whole term with the average or mean population of the whole term.

The whole number of births, with the addition of $\frac{1}{6}$, is, as before stated, 3,358,723, and the annual average during the ten years 335,872. The mean population, or the mean between 10,488,000 (the population of 1810) and 9,287,000 (the corrected population of 1800), is 9,887,000; and the latter number divided by the average of the births will give a proportion of births to the population as 1 to rather less than $29\frac{1}{2}$, instead of 30, which will make a considerable difference.

In the same manner, if we divide the population of 1810 by the average of the burials for the preceding five years, with the addition of one-12th, the mortality will appear to be as 1 in nearly 50; but upon the same grounds as with regard to the births, an average of the burials for five years, compared with the population at the end of such term, must give the proportion of burials too small; and further, it is known, in the present case, that the proportion of burials to the population by no means continued the same during the whole time. In fact the registers clearly show an improvement in the healthiness of the country, and a diminution of mortality progressively through the ten years; and while the average number of annual births increased from 263,000 to 287,000, or more than one-8th, the burials increased only from 192,000 to 196,000 or one-48th. It is obviously necessary then for the purpose in view to compare the average mortality with the average or mean population.

The whole number of burials in the ten years, with the addition of one-12th, is, as was before stated, 2,112,704, and the mean population 9,887,000. The latter, divided by the former, gives the annual average of burials compared with the population as 1

to rather less than 47. But a proportion of births as 1 to 29½, with a proportion of deaths as 1 to 47, will add yearly to the numbers of a country one-79th of the whole, and in ten years will increase the population from 9,287,000 to 10,531,000, leaving 43,000 for the deaths abroad, and agreeing very nearly with the calculation founded on the excess of births.[1]

We may presume therefore that the assumed omissions in the births and deaths from 1800 to 1810 are not far from the truth.

But if these omissions of one-6th for the births, and one-12th for the burials, may be considered as nearly right for the period between 1800 and 1810, it is probable that they may be applied without much danger of error to the period between 1780 and 1800, and may serve to correct some of the conclusions founded on the births alone. Next to an accurate enumeration, a calculation from the excess of births above the deaths is the most to be depended upon. Indeed, when the registers contain all the births and deaths, and there are the means of setting out from a known population, it is obviously the same as an actual enumeration; and where a nearly correct allowance can be made for the omissions in the registers, and for the deaths abroad, a much nearer approximation to it may be obtained in this way than from the proportion of births to the whole population, which is known to be liable to such frequent variations.

The whole number of births returned in the twenty years, from 1780 to 1800, is 5,014,899, and of the burials 3,840,455. If we add one-6th to the former, and one-12th to the latter, the two numbers will be 5,850,715 and 4,160,492; and subtracting the latter from the former, the excess of the births above the deaths

[1] A general formula for estimating the population of a country at any distance from a certain period, under given circumstances of births and mortality, may be found in Bridge's Elements of Algebra, p. 225.

$$\text{Log. } A = \text{log. } P + n \times \text{log. } \frac{1 + m - b}{m\ b}$$

A representing the required population at the end of any number of years; n the number of years; P the actual population at the given period; $\frac{1}{m}$ the proportion of yearly deaths to the population, or ratio of mortality; $\frac{1}{b}$ the proportion of yearly births to the population, or ratio of births.

In the present case, P = 9,287,000; n = 10; m = 47; b = 29½.

$$\frac{m - b}{m\ b} = \frac{17}{1363} \text{ and } 1 + \frac{m - b}{m\ b} = \frac{1380}{1363}$$

The log. of $\frac{1380}{1363}$ = 00546; $\therefore n \times \text{log. } \frac{1 + m - b}{m\ b} = 05460$.

Log. P = 6.96787, which added to 05460 = 7.02247 the log. of A, the number answering to which is 10,531,000.

will be 1,690,223. Adding this excess to the population of 1780, as calculated in Mr. Rickman's tables, from the births, which is 7,953,000, the result will be 9,643,000, a number which, after making a proper allowance for the deaths abroad, is very much above the population of 1800, as before corrected, and still more above the number which is given in the table as the result of the enumeration.

But if we proceed upon the safer ground just suggested, and, taking the corrected population of 1800 as established, subtract from it the excess of the births during the twenty years, diminished by the probable number of deaths abroad, which in this case will be about 124,000, we shall have the number 7,721,000 for the population of 1780, instead of 7,953,000; and there is good reason to believe that this is nearer the truth;[1] and that not only in 1780, but in many of the intermediate periods, the estimate from the births has represented the population as greater, and increasing more irregularly, than would be found to be true if recourse could be had to enumerations. This has arisen from the proportion of births to the population being variable, and, on the whole, greater in 1780, and at other periods during the course of the twenty years, than it was in 1800.

In 1795, for instance, the population is represented to be 9,055,000, and in 1800, 9,168,000;[2] but if we suppose the first number to be correct, and add the excess of the births above the deaths in the five intervening years, even without making any allowance for omissions in the registers, we shall find that the population in 1800 ought to have been 9,398,000, instead of 9,168,000; or if we take the number returned for 1800 as correct, it will appear, by subtracting from it the excess of births during the five preceding years, that the population in 1795 ought to have been 8,825,000, instead of 9,055,000. Hence it follows that the estimate from the births in 1795 cannot be correct.

To obtain the population at that period, the safest way is to apply the before-mentioned corrections to the registers, and, having made the allowance of $4\frac{1}{4}$ per cent. on the male births for the deaths abroad, subtract the remaining excess of the births from the corrected returns of 1800. The result in this case will be 8,831,086 for the population of 1795, implying an increase in the five years of 455,914, instead of only 113,000, as shown by the table calculated from the births.

[1] The very small difference between the population of 1780 and 1785, as given in the table, seems strongly to imply that one of the two estimates is erroneous.

[2] Population Abstracts, 1811. Preliminary View, p. xxv.

If we proceed in the same manner with the period from 1790 to 1795, we shall find that the excess of births above the deaths (after the foregoing corrections have been applied, and an allowance has been made of $4\frac{1}{4}$ per cent. upon the male births for the deaths abroad) will be 415,669, which, subtracted from 8,831,086, the population of 1795, as above estimated, leaves 8,415,417 for the population of 1790.

Upon the same principle, the excess of the births above the deaths in the interval between 1785 and 1790 will turn out to be 416,776. The population in 1785 will therefore be 7,998,641. And in like manner the excess of the births above the deaths in the interval between 1780 and 1785 will be 277,544, and the population in 1780, 7,721,097.

The two tables, therefore, of the population, from 1780 to 1810, will stand thus:—

Table, calculated from the births alone, in the Preliminary Observations to the Population Abstracts, printed in 1811.

Population in	
1780	7,953,000
1785	8,016,000
1790	8,675,000
1795	9,055,000
1800	9,168,000
1805	9,828,000
1810	10,488,000

Table, calculated from the excess of the births above the deaths, after an allowance made for the omissions in the registers, and the deaths abroad.

Population in	
1780	7,721,000
1785	7,998,000
1790	8,415,000
1795	8,831,000
1800	9,287,000
1805	9,837,000
1810	10,488,000

In the first table, or table calculated from the births alone, the additions made to the population in each period of five years are as follow:—

From 1780 to 1785	63,000
From 1785 to 1790	659,000
From 1790 to 1795	380,000
From 1795 to 1800	113,000
From 1800 to 1805	660,000
From 1805 to 1810	660,000

In the second table, or table calculated from the excess of the births above the deaths, after the proposed corrections have been

applied, the additions made to the population in each period of five years will stand thus:—

From 1780 to 1785	277,000
From 1785 to 1790	417,000
From 1790 to 1795	416,000
From 1795 to 1800	456,000
From 1800 to 1805	550,000
From 1805 to 1810	651,000

The progress of the population, according to this latter table, appears much more natural and probable than according to the former.

It is in no respect likely that, in the interval between 1780 and 1785, the increase of the population should only have been 63,000, and in the next period 659,000; or that, in the interval between 1795 and 1800, it should have been only 113,000, and in the next period 660,000. But it is not necessary to dwell on probabilities; the most distinct proofs may be brought to show that, whether the new table be right or not, the old table must be wrong. Without any allowances being made for omissions in the registers, the excess of the births above the deaths, in the period from 1780 to 1785, shows an increase of 193,000, instead of 63,000. And, on the other hand, no allowances for omissions in the registers, that could with the slightest degree of probability be supposed, would make the excess of births above the deaths in the period from 1785 to 1790 equal to 659,000. Making no allowance for omissions, this excess only amounts to 317,306; and if we were to suppose the omissions in the births one-4th, instead of one-6th, and that there were no omissions in the registers of burials, and that no one died abroad, the excess would still fall short of the number stated by many thousands.

The same results would follow, if we were to estimate the progress of population during these periods by the proportion of births to deaths, and the rate of mortality. In the first period the increase would turn out to be very much greater than the increase stated, and in the other very much less.

Similar observations may be made with regard to some of the other periods in the old table, particularly that between 1795 and 1800, which has been already noticed.

It will be found, on the other hand, that, if the proportion of births to deaths during each period be estimated with tolerable

accuracy and compared with the mean population, the rate of the progress of the population determined by this criterion will, in every period, agree very nearly with the rate of progress determined by the excess of the births above the deaths, after applying the proposed corrections. And it is further worthy of remark that, if the corrections proposed should be in some degree inaccurate, as is probable, the errors arising from any such inaccuracies are likely to be very much less considerable than those which must necessarily arise from the assumption on which the old table is founded; namely, that the births bear at all times the same proportion to the population.

Of course I do not mean to reject any estimates of population formed in this way, when no better materials are to be found; but, in the present case, the registers of the burials as well as baptisms are given every year, as far back as 1780, and these registers, with the firm ground of the last enumeration to stand upon, afford the means of giving a more correct table of the population from 1780 than was before furnished, and of showing at the same time the uncertainty of estimates from the births alone, particularly with a view to the progress of population during particular periods. In estimating the whole population of a large country, two or three hundred thousand are not of much importance; but, in estimating the rate of increase during a period of five or ten years, an error to this amount is quite fatal. It will be allowed, I conceive, to make an essential difference in our conclusions respecting the rate of increase for any five years which we may fix upon, whether the addition made to the population during the term in question is 63,000 or 277,000, 115,000 or 456,000, 659,000 or 417,000.

With regard to the period of the century previous to 1780, as the registers of the baptisms and burials are not returned for every year, it is not possible to apply the same corrections. And it will be obvious that, in the table calculated from the births previous to this period, when the registers are only given for insulated years at some distance from each other, very considerable errors may arise, not merely from the varying proportion of the births to the population, on averages of five years, but from the individual years produced not representing with tolerable correctness these averages.[1] A very slight glance at the valuable

[1] From the one or other of these causes, I have little doubt that the numbers in the table for 1760 and 1770, which imply so rapid an increase of population in that interval, do not bear the proper relation to each other. It is probable that the number given for 1770 is too great.

table of baptisms, burials, and marriages given in the Preliminary Observations to the Population Abstracts[1] will show how very little dependence ought to be placed upon inferences respecting the population drawn from the number of births, deaths, or marriages in individual years. If, for instance, we were estimating the population in the two years 1800 and 1801, compared with the two following years 1802 and 1803, from the proportion of marriages to the population, assuming this proportion to be always the same, it would appear that, if the population in the first two years were nine millions, in the second two years immediately succeeding it would be considerably above twelve millions, and thus it would seem to have increased above three millions, or more than one-third, in this short interval. Nor would the result of an estimate, formed from the births for the two years 1800 and 1801, compared with the two years 1803 and 1804, be materially different; at least, such an estimate would indicate an increase of two millions six hundred thousand in three years.

The reader can hardly be surprised at these results, if he recollects that the births, deaths, and marriages bear but a small proportion to the whole population; and that consequently variations in either of these, which may take place from temporary causes, cannot possibly be accompanied by similar variations in the whole mass of the population. An increase in the births of one-third, which might occur in a single year, instead of increasing the population one-third, would only perhaps increase it one-eightieth or ninetieth.

It follows therefore, as I stated in the last chapter, that the table of the population for the century previous to 1780, calculated from the returns of the births alone, at the distance of ten years each, can only be considered as a very rough approximation towards the truth, in the absence of better materials, and can scarcely in any degree be depended upon for the comparative rate of increase at particular periods.

The population in 1810, compared with that of 1800, corrected as proposed in this chapter, implies a less rapid increase than the difference between the two enumerations; and it has further appeared that the assumed proportion of births to deaths as 47 to 29½ is rather below than above the truth. Yet this proportion is quite extraordinary for a rich and well-peopled territory. It would add to the population of a country one-79th every year, and, were it to continue, would, according to table ii. ch. xi. of

[1] P. 20.

this book, double the number of inhabitants in less than fifty-five years.

This is a rate of increase which in the nature of things cannot be permanent. It has been occasioned by the stimulus of a greatly-increased demand for labour, combined with a greatly-increased power of production, both in agriculture and manufactures. These are the two elements which form the most effective encouragement to a rapid increase of population. What has taken place is a striking illustration of the principle of population, and a proof that in spite of great towns, manufacturing occupations, and the gradually-acquired habits of an opulent and luxuriant people, if the resources of a country will admit of a rapid increase, and if these resources are so advantageously distributed as to occasion a constantly-increasing demand for labour, the population will not fail to keep pace with them.

1825

Since the publication of the last edition of this work in 1817, a third census of the population has taken place, and the results are highly worthy of our attention.

According to the enumeration in 1821, and the corrected returns of 1811 and 1801, as given in the preliminary observations to the published account by Mr. Rickman, the population of Great Britain was, in 1801, 10,942,646; in 1811, 12,596,803; and in 1821, 14,391,631.

These numbers taken as first stated, and including the very large numbers of males added in 1811 for the army and navy, give an increase of 15 per cent. in the ten years from 1800 to 1811, and only 14¼ per cent. from 1810 to 1821.[1] But it is calculated that out of the 640,500 males added for the army, navy, and merchant service, above one-third must have been Irish and foreigners. Adding therefore only $\frac{1}{30}$ to the resident population in 1801 and 1811, and on account of the peace allowing only $\frac{1}{60}$ for the absent males in 1821, the population of England and Wales at the three different periods, without reference to any supposed deficiency in the first enumeration, will stand thus: in 1801, 9,168,000; in 1811, 10,502,500; and in 1821, 12,218,500, giving an increase in the interval between 1800 and 1811 of 14½ per cent. and in the interval between 1810 and 1821 of 16½ per cent. The first of these two rates of increase would double the population in 51 and the other in 46

[1] Preliminary Observations, p. viii.

years. As, however, there must always be some uncertainty respecting the proportion of the persons employed in the army, navy, and merchant service, properly belonging to the resident population, and as the male population is on other accounts more frequently on the move than the female, it has been judiciously proposed to estimate the rate of increase by the female population alone. The number of females in Great Britain was in 1801, 5,492,354; in 1811, 6,262,716; and in 1821, 7,253,728, giving an increase in the first period of 14.02 per cent. and in the second of 15.82.[1]

The increase of Scotland taken by itself was in the first period 13 per cent. and in the second 14½. The increase of England and Wales exclusive of Scotland appears to be almost exactly the same; particularly in the second period, whether we estimate it from the females alone, or from the whole population, with the proposed allowances for the army and navy, etc., a proof that these allowances are not far from the truth. At the same time, it should perhaps be remarked, that if, on account of the war, during the greater part of the period from 1800 to 1821, there must have been a greater portion of the male population destroyed than usual, the increase of the whole population ought not to be so great in proportion as the increase of the females; and that if such an increase appears, it is probably owing to too great a number of males having been added to the resident population for the army and navy, or to an influx from Scotland and Ireland.

The numbers above mentioned, and the rates of increase, have been stated as given by Mr. Rickman in the Preliminary Observations to the Population Abstracts. But in the former part of this chapter I assumed on what appeared to me to be sufficient ground that the first enumeration was not so correct as that of 1811, and it is probable that the enumeration of 1811 is not quite so correct as that of 1821. In this case the rates of increase in the two periods will not be so great as above stated, but still they will appear to be very extraordinary.

According to the assumed estimate, the population, as given in the enumeration of 1801, was about 119,000 short of the truth; and if on this ground we take the female population of the census in 1801 as deficient 60,000, and suppose that in 1811 it was deficient 30,000, the numbers of females in England and Wales at the different periods will stand thus: In 1801, 4,687,867; in 1811, 5,313,219; and in 1821, 6,144,709; giving an increase of 13.3 per

[1] Preliminary Observations, p. viii.

cent. in the period from 1800 to 1811, and of 15.6 per cent. in the period from 1800 to 1821; making the rate of increase in the former period such as, if continued, would double the population in about 55 years, and in the latter, such as would double it in 48 years. Taking the whole 20 years together, the rate of increase would be such as, if continued, would double the population in about 51 years.

This is no doubt a most extraordinary rate of increase, considering the actual population of the country compared with its territory, and the number of its great towns and manufactories. It is less, however, than that which is stated in the Preliminary Observations to the Population Abstracts. Yet even according to this slower rate of increase it is necessary to suppose that the omissions in the parish registers, particularly in regard to the births, have latterly rather increased than diminished; and this is rendered probable by a statement of Mr. Rickman in the Preliminary Observations. He says, "the question respecting unentered baptisms and burials showed a difference of nearly four to one in the degree of deficiency in the year 1811, the annual average number of unentered baptisms (as stated at the end of the several counties) having been 14,860; of burials (setting aside London) 3899; at present the proportion is five to one in the degree of deficiency, the annual average number of unentered baptisms (as stated at the end of the several counties) being 23,066; of burials (setting aside London) 4657." And he goes on to say, "Nor does this represent the full amount or proportion of unentered baptisms, the clergy of the most populous places, especially where many of the inhabitants are dissenters, usually declining to hazard an estimate." A burial ground, on the contrary, is a visible object, and among the persons connected with it, the clergyman can usually procure an account (more or less accurate) of the number of interments.

On these grounds it would appear probable that, owing to the increasing number of dissenters or other causes, the omissions in the registers of births had been lately increasing rather than diminishing. Yet it has been thought that since the Act of 1812 the registers of births have been more carefully kept; and it is certain that, in the 10 years ending with 1820, the proportion of births to marriages is greater, though the proportions of births and marriages to the whole population are both less than they were either in 1800, or in the ten years ending with 1810. Under these circumstances, it may be advisable to wait for further documents before any fresh conclusion is drawn respecting the

probable amount of omissions in the births and burials. What may be considered as certain is, that, whereas the supposed admissions of one-sixth in the births and one-twelfth in the burials, with a proper allowance for the deaths abroad, are more than sufficient to account for the increase of population during the twenty years from 1781 to 1801, according to the numbers stated by Mr. Rickman, they are not sufficient to account for the increase of population in the 20 years from 1801 to 1821, according to the enumerations.

I have heard it surmised that the enumerations, particularly the two last, may by possibility exceed rather than fall short of the truth, owing to persons being reckoned more than once, from their having different places of residence. It must be allowed that this supposition would account for the fact of the diminished proportions of births and marriages to the whole population, notwithstanding the apparent increase of that population with extraordinary rapidity. But the same diminished proportions would take place owing to a diminished mortality; and as a diminished mortality has been satisfactorily established on other grounds, it will fairly account for much of what appears. And if anything can justly be attributed to over enumerations, it must be of trifling amount.

That there are great omissions both in the births and burials, and greater in the former than in the latter, it is quite impossible to doubt. The testimony of all the clergy concerned in making the returns was, according to Mr. Rickman, uniform in this respect. And if we suppose only the same proportion of omissions from 1801 to 1821 as we supposed from 1781 to 1801, and commence with the census of 1801, on the presumption that the number of double entries in that enumeration would be balanced probably by the number of deficiencies, it will appear that the excess of the births alone, excluding the deaths abroad, would bring the population to within 184,404 of the enumeration of 1821, and including the allowance for deaths abroad (which, in this case, from a comparison of the excess of male births with the male and female deaths, appears to be 128,651), to within 313,055.

On the supposition of such an amount of double entries unbalanced by deficiencies in the two last returns, the enumerations would still show a very extraordinary increase of population. The rate of increase in the period from 1801 to 1811 would be nearly 13 per cent. (12.88), which would double the population in about 57 years; and in the period from 1811 to 1821, it would

be very nearly 15 per cent. (14.95), which would double the population in 50 years.

Under the uncertainty in which we must remain at present as to whether the enumerations partially err in defect or in excess, I have not thought it advisable to alter the amended table of the population from 1781 to 1811, given in the former part of this chapter. It is founded on a principle so very much safer than an estimate for the births alone that it must at any rate show the progress of the population more correctly than that given in the Preliminary Observations.

The more indeed the population returns are considered, the more uncertain will appear all estimates of the past population founded on the assumptions that the proportion of the births will always be nearly the same. If the population since the year 1801 were to be estimated in the same way as Mr. Rickman has estimated it before that year, it would appear that the population in 1821, instead of being, according to the enumeration, 12,218,500, would only be 11,625,334, that is, 593,166 or nearly 600,000 short of the enumeration of 1821. And the reason is, that the proportion of births to the population, which, estimated in the way suggested by Mr. Rickman, and without allowing for omissions, was, in 1821, only as 1 to 36.58, was, in 1801, as much as 1 to 34.8.

Supposing the enumerations to be correct, the varying proportions of the births (without allowance for omissions, and comparing the population at the end of each term with the average births for the five preceding years) would be for 1801 as 1 to 34.8, for 1811 as 1 to 35.3, and for 1821 as 1 to 36.58.

Similar and even greater variations will be found to take place in regard to the proportions of the marriages to the population.

In 1801, the proportion was 1 to 122.2, in 1811, 1 to 126.6, in 1821, 1 to 131.1; and if, assuming that, for the 20 years ending with 1820, the marriages, in which it is supposed that there are very few omissions, would remain in the same proportion to the population as in 1801, we had estimated the population by the marriages, the numbers in 1821, instead of being 12,218,500, would only have been 11,377,548, that is, 840,952 short of the enumeration of 1821.

It appears, then, that if we can put any trust in our enumerations,[1] no reliance can be placed on an estimate of past popula-

[1] The migrations into England from Ireland and Scotland may account for some portion of the excess of the enumerations above what is warranted by the excess of the births above the deaths.

tion founded on the proportions of the births, deaths, or marriages. The same causes which have operated to alter so essentially these proportions during the 20 years for which we have enumerations may have operated in an equal degree before; and it will be generally found true that the increasing healthiness of a country will not only diminish the proportions of deaths, but the proportions of births and marriages.

CHAPTER X

OF THE CHECKS TO POPULATION IN SCOTLAND AND IRELAND

An examination, in detail, of the statistical account of Scotland would furnish numerous illustrations of the principle of population; but I have already extended this part of the work so much that I am fearful of tiring the patience of my readers; and shall therefore confine my remarks in the present instance to a few circumstances which have happened to strike me.

On account of the acknowledged omissions in the registers of births, deaths, and marriages in most of the parishes of Scotland, few just inferences can be drawn from them. Many give extraordinary results. In the parish of Crossmichael[1] in Kirkcudbright, the mortality appears to be only 1 in 98, and the yearly marriages 1 in 192. These proportions would imply the most unheard-of healthiness, and the most extraordinary operation of the preventive check; but there can be but little doubt that they are principally occasioned by the omissions in the registry of burials, and the celebration of a part of the marriages in other parishes.

In general, however, it appears, from registers which are supposed to be accurate, that in the country parishes the mortality is small; and that the proportions of 1 in 45, 1 in 50, and 1 in 55, are not uncommon. According to a table of the probabilities of life, calculated from the bills of mortality in the parish of Kettle by Mr. Wilkie, the expectation of an infant's life is 46.6,[2] which is very high, and the proportion which dies in the first year is only one-10th. Mr. Wilkie further adds, that from 36 parish accounts published in the first volume, the expectation of an infant's life appears to be 40.3. But in a table which he had produced in the last volume, calculated for the whole of Scotland from Dr. Webster's survey, the expectation at birth appears to be only 31 years.[3] This, however, he thinks, must be too low, as it exceeds but little the calculations for the town of Edinburgh.

The Scotch registers appeared to be in general so incomplete that the returns of 99 parishes only are published in the Popula-

[1] Statistical Account of Scotland, vol. i. p. 167.
[2] Id. vol. ii. p. 407.
[3] Id. vol. xxi. p. 383.

tion Abstracts of 1801; and, if any judgment can be formed from these, they show a very extraordinary degree of healthiness and a very small proportion of births. The sum of the population of these parishes in 1801 was 217,873;[1] the average of burials, for five years ending in 1800, was about 3815; and of births 4928:[2] from which it would appear that the mortality in these parishes was only 1 in 56, and the proportion of births 1 in 44. But these proportions are so extraordinary that it is difficult to conceive that they approach near the truth. Combining them with the calculations of Mr. Wilkie, it will not appear probable that the proportion of deaths and births in Scotland should be smaller than what has been allowed for England and Wales; namely, 1 in 40 for the deaths, and 1 in 30 for the births; and it seems to be generally agreed that the proportion of births to deaths is 4 to 3.[3]

With respect to the marriages, it will be still more difficult to form a conjecture. They are registered so irregularly that no returns of them are given in the Population Abstracts. I should naturally have thought, from the Statistical Account, that the tendency to marriage in Scotland was upon the whole greater than in England; but if it be true that the births and deaths bear the same proportion to each other, and to the whole population, in both countries, the proportion of marriages cannot be very different. It should be remarked, however, that supposing the operation of the preventive check to be exactly the same in both countries, and the climates to be equally salubrious, a greater degree of want and poverty would take place in Scotland before the same mortality was produced as in England, owing to the smaller proportion of towns and manufactories in the former country than in the latter.

From a general view of the statistical accounts the result seems clearly to be, that the condition of the lower classes of people in Scotland has been considerably improved of late years. The price of provisions has risen, but almost invariably the price of labour has risen in a greater proportion; and it is remarked in most parishes that more butcher's meat is consumed among the common people than formerly; that they are both better lodged and better clothed; and that their habits with respect to cleanliness are decidedly improved.

[1] Population Abstracts, Parish Registers, p. 459. [2] Id. p. 458.
[3] Statistical Account of Scotland, vol. xxi. p. 383. The comparison with England here refers to the time of the first enumeration. There is little doubt that the mortality of Scotland has diminished, and the proportion of births to deaths increased since 1800.

A part of this improvement is probably to be attributed to the increase of the preventive check. In some parishes a habit of later marriages is noticed; and in many places, where it is not mentioned, it may be fairly inferred from the proportion of births and marriages and other circumstances. The writer of the account of the parish of Elgin,[1] in enumerating the general causes of depopulation in Scotland, speaks of the discouragement of marriage from the union of farms, and the consequent emigration of the flower of their young men, of every class and description, very few of whom ever return. Another cause that he mentions is the discouragement to marriage from luxury; at least, he observes, till people are advanced in years, and then a puny race of children is produced. "Hence how many men of every description remain single? and how many young women of every rank are never married, who in the beginning of this century, or even so late as 1745, would have been the parents of a numerous and healthy progeny?"

In those parts of the country where the population has been rather diminished by the introduction of grazing, or an improved system of husbandry which requires fewer hands, this effect has chiefly taken place; and I have little doubt that in estimating the decrease of the population since the end of the last, or the beginning of the present century, by the proportion of births at the different periods, they have fallen into the error which has been particularly noticed with regard to Switzerland and France, and have in consequence made the difference greater than it really is.[2]

The general inference on this subject which I should draw from the different accounts is, that the marriages are rather later than formerly. There are, however, some decided exceptions. In those parishes where manufactures have been introduced, which afford employment to children as soon as they have reached their 6th or 7th year, a habit of marrying early naturally follows; and while the manufacture continues to flourish and increase, the evil arising from it is not very perceptible; though humanity must confess with a sigh that one of the reasons why it is not so perceptible is, that room is made for fresh families by the unnatural mortality which takes place among the children so employed.

[1] Vol. v. p. 1.

[2] One writer takes notice of this circumstance, and observes, that formerly the births seem to have borne a greater proportion to the whole population than at present. Probably, he says, more were born, and there was a greater mortality. Parish of Montquitter, vol. vi. p. 121.

There are other parts of Scotland, however, particularly the Western Isles, and some parts of the Highlands, where population has considerably increased from the subdivision of possessions; and where perhaps the marriages may be earlier than they were formerly, though not caused by the introduction of manufactures. Here the poverty which follows is but too conspicuous. In the account of Delting in Shetland,[1] it is remarked that the people marry very young, and are encouraged to do this by their landlords, who wish to have as many men on their grounds as possible, to prosecute the ling fishery; but that they generally involve themselves in debt and large families. The writer further observes that formerly there were some old regulations called country acts, by one of which it was enacted that no pair should marry unless possessed of £40 Scots of free gear. This regulation is not now enforced. It is said that these regulations were approved and confirmed by the parliament of Scotland in the reign of Queen Mary or James VI.

In the account of Bressay Burra and Quarff in Shetland,[2] it is observed that the farms are very small, and few have a plough. The object of the proprietors is to have as many fishermen on their lands as possible—a great obstacle to improvements in agriculture. They fish for their masters, who either give them a fee totally inadequate, or take their fish at a low rate. The writer remarks, that "in most countries the increase of population is reckoned an advantage, and justly. It is, however, the reverse in the present state of Shetland. The farms are split. The young men are encouraged to marry without having any stock. The consequence is poverty and distress. It is believed that there is at present in these islands double the number of people that they can properly maintain."

The writer of the account of Auchterderran,[3] in the county of Fife, says that the meagre food of the labouring man is unequal to oppose the effects of incessant hard labour upon his constitution, and by this means his frame is worn down before the time of nature's appointment; and adds, "That people continuing voluntarily to enter upon such a hard situation by marrying shows how far the union of the sexes and the love of independence are principles of human nature." In this observation, perhaps the love of independence had better have been changed for the love of progeny.

The island of Jura[4] appears to be absolutely overflowing with inhabitants in spite of constant and numerous emigrations.

[1] Vol. i. p. 385. [2] Vol. x. p. 194. [3] Vol. i. p. 449. [4] Vol. xii. p. 317.

There are sometimes 50 or 60 on a farm. The writer observes, that such a swarm of inhabitants, where manufactures and many other branches of industry are unknown, are a very great load upon the proprietors and useless to the state.

Another writer [1] is astonished at the rapid increase of population, in spite of a considerable emigration to America in 1770, and a large drain of young men during the late war. He thinks it difficult to assign adequate causes for it; and observes, that, if the population continue to increase in this manner, unless some employment be found for the people, the country will soon be unable to support them. And in the account of the parish of Callander,[2] the writer says, that the villages of this place, and other villages in similar situations, are filled with naked and starving crowds of people, who are pouring down for shelter or for bread; and then observes, that whenever the population of a town or village exceeds the industry of its inhabitants, from that moment the place must decline.

A very extraordinary instance of a tendency to rapid increase occurs in the register of the parish of Duthil,[3] in the county of Elgin; and as errors of excess are not so probable as errors of omission, it seems to be worthy of attention. The proportion of annual births to the whole population is as 1 to 12, of marriages as 1 to 55, and of deaths the same. The births are to the deaths as 70 to 15, or $4\frac{2}{3}$ to 1. We may suppose some inaccuracy respecting the number of deaths, which seems to err on the side of defect; but the very extraordinary proportion of the annual births, amounting to $\frac{1}{12}$ of the whole population, seems not to be easily liable to error; and the other circumstances respecting the parish tend to confirm the statement. Out of a population of 830, there were only three bachelors, and each marriage yielded seven children. Yet with all this, the population is supposed to have decreased considerably since 1745; and it appears that this excessive tendency to increase had been occasioned by an excessive tendency to emigrate. The writer mentions very great emigrations; and observes that whole tribes, who enjoyed the comforts of life in a reasonable degree, had of late years emigrated from different parts of Scotland from mere humour and a fantastical idea of becoming their own masters and freeholders.

Such an extraordinary proportion of births, caused evidently by habits of emigration, shows the extreme difficulty of depopulating a country merely by taking away a part of its people.

[1] Parish of Lochalsh, County of Ross, vol. xi. p. 422.
[2] Vol. xi. p. 574.
[3] Vol. iv. p. 308.

Take but away its industry, and the sources of its subsistence, and it is done at once.

It may be observed that in this parish the average number of children to a marriage is said to be seven, though from the proportion of annual births to annual marriages it would appear to be only $4\frac{2}{3}$. This difference occurs in many other parishes, from which we may conclude that the writers of these accounts very judiciously adopted some other mode of calculation than the mere uncorrected proportion of annual births to marriages; and probably founded the results they give, either on personal inquiries, or researches into their registers, to find the number of children which had been born to each mother in the course of her marriage.

The women of Scotland appear to be prolific. The average of 6 children to a marriage is frequent; and of 7, and even $7\frac{1}{2}$, not very uncommon. One instance is very curious, as it appears as if this number was actually living to each marriage, which would of course imply that a much greater number had been and would be born. In the parish of Nigg,[1] in the county of Kincardine, the account says, that there are 57 land families, and 405 children, which gives nearly $7\frac{1}{5}$ each; 42 fisher families, and 314 children, nearly $7\frac{1}{2}$ each. Of the land families which have had no children there were 7; of the fishers, none. If this statement be just, I should conceive that each marriage must have yielded, or would yield, in the course of its duration, as many as 9 or 10 births.

When from any actual survey it appears that there are about 3 living children to each marriage, or 5 persons, or only $4\frac{1}{2}$ to a house, which are very common proportions, we must not infer that the average number of births to a marriage is not much above 3. We must recollect that all the marriages or establishments of the present year are of course without children, all of the year before have only one, all of the year before that can hardly be expected to have as many as two, and all of the fourth year will certainly, in the natural course of things, have less than three. One out of five children is a very unusually small proportion to lose in the course of ten years; and after ten years, it may be supposed that the eldest begin to leave their parents; so that if each marriage be supposed accurately to yield 5 births in the course of its duration, the families which had increased to their full complement would only have four children; and a very large proportion of those which were in the earlier stages of

[1] Vol. vii. p. 194.

increase would have less than three;[1] and consequently, taking into consideration the number of families where one of the parents may be supposed to be dead, I much doubt whether in this case a survey would give 4½ to a family. In the parish of Duthil,[2] already noticed, the number of children to a marriage is mentioned as 7, and the number of persons to a house as only 5.

The poor of Scotland are in general supported by voluntary contributions, distributed under the inspection of the minister of the parish; and it appears, upon the whole, that they have been conducted with considerable judgment. Having no claim of right to relief,[3] and the supplies, from the mode of their collection, being necessarily uncertain, and never abundant, the poor have considered them merely as a last resource in cases of extreme distress, and not as a fund on which they might safely rely, and an adequate portion of which belonged to them by the laws of their country in all difficulties.

The consequence of this is, that the common people make very considerable exertions to avoid the necessity of applying for such a scanty and precarious relief. It is observed, in many of the accounts, that they seldom fail of making a provision for sickness and for age; and, in general, the grown-up children and relations of persons who are in danger of falling upon the parish, step forward, if they are in any way able, to prevent such a degradation, which is universally considered as a disgrace to the family.

The writers of the accounts of the different parishes frequently reprobate in very strong terms the system of English assessments for the poor, and give a decided preference to the Scotch mode of relief. In the account of Paisley,[4] though a manufacturing town, and with a numerous poor, the author still reprobates the English system, and makes an observation on this subject, in which perhaps he goes too far. He says that, though there are in no country such large contributions for the poor as in England, yet there is nowhere so great a number of them; and their condition, in comparison of *the poor of other countries, is truly most miserable.*

[1] It has been calculated that, on an average, the difference of age in the children of the same family is about two years.

[2] Vol. iv. p. 308.

[3] It has lately been stated in Parliament, that the poor-laws of Scotland are not materially different from those of England, though they have been very differently understood and executed; but, whatever may be the laws on the subject, the practice is generally as here represented; and it is the practice alone that concerns the present question.

[4] Vol. vii. p. 74.

In the account of Caerlaverock,[1] in answer to the question, How ought the poor to be supplied? it is most judiciously remarked, "that distress and poverty multiply in proportion to the funds created to relieve them; that the measures of charity ought to remain invisible, till the moment when it is necessary that they should be distributed; that in the country parishes of Scotland in general small occasional voluntary collections are sufficient; that the legislature has no occasion to interfere to augment the stream, which is already copious enough; in fine, that the establishment of a poor's rate would not only be unnecessary but hurtful, as it would tend to oppress the landholder, without bringing relief on the poor."

These, upon the whole, appear to be prevailing opinions of the clergy of Scotland. There are, however, some exceptions; and the system of assessments is sometimes approved, and the establishment of it recommended. But this is not to be wondered at. In many of these parishes the experiment had never been made; and without being thoroughly aware of the principle of population from theory, or having fully seen the evils of poor-laws in practice, nothing seems, on a first view of the subject, more natural than the proposal of an assessment, to which the uncharitable, as well as the charitable, should be made to contribute according to their abilities, and which might be increased or diminished according to the wants of the moment.

The endemic and epidemic diseases in Scotland fall chiefly, as is usual, on the poor. The scurvy is in some places extremely troublesome and inveterate; and in others it arises to a contagious leprosy, the effects of which are always dreadful, and not unfrequently mortal. One writer calls it the scourge and bane of human nature.[2] It is generally attributed to cold and wet situations, meagre and unwholesome food, impure air from damp and crowded houses, indolent habits, and the want of attention to cleanliness.

To the same causes, in a great measure, are attributed the rheumatisms which are general, and the consumptions which are frequent among the common people. Whenever, in any place, from particular circumstances, the condition of the poor has been rendered worse, these disorders, particularly the latter, have been observed to prevail with greater force.

Low nervous fevers, and others of a more violent and fatal nature, are frequently epidemic, and sometimes take off consider-

[1] Vol. vi. p. 21.
[2] Parishes of Forbes and Kearn, County of Aberdeen, vol. xi. p. 189.

able numbers; but the most fatal epidemic, since the extinction of the plague which formerly visited Scotland, is the smallpox, the returns of which are, in many places, at regular intervals; in others, irregular, but seldom at a greater distance than 7 or 8 years. Its ravages are dreadful, though in some parishes not so fatal as they were some time ago. The prejudices against inoculation are still great; and as the mode of treatment must almost necessarily be bad in small and crowded houses, and the custom of visiting each other during the disorder still subsists in many places, it may be imagined that the mortality must be considerable, and the children of the poor the principal sufferers. In some parishes of the Western Isles and the Highlands, the number of persons to a house has increased from 4½ and 5, to 6½ and 7. It is evident that, if such a considerable increase, without the proper accommodations for it, cannot generate the disease, it must give to its devastations tenfold force when it arrives.

Scotland has at all times been subject to years of scarcity, and occasionally even to dreadful famines. The years 1635, 1680, 1688, the concluding years of the 16th century, the years 1740, 1756, 1766, 1778, 1782, and 1783, are all mentioned, in different places, as years of very great sufferings from want. In the year 1680, so many families perished from this cause that for six miles, in a well-inhabited extent, there was not a smoke remaining.[1] The seven years at the end of the 16th century were called the ill years. The writer of the account of the parish of Montquhitter[2] says, that of 16 families on a farm in that neighbourhood, 13 were extinguished; and on another, out of 169 individuals, only 3 families (the proprietors included) survived. Extensive farms, now containing a hundred souls, being entirely desolated, were converted into a sheep-walk. The inhabitants of the parish in general were diminished by death to one-half, or, as some affirm, to one-fourth of the preceding number. Until 1709 many farms were waste. In 1740, another season of scarcity occurred; and the utmost misery was felt by the poor, though it fell short of death. Many offered in vain to serve for their bread. Stout men accepted thankfully twopence a day in full for their work. Great distress was also suffered in 1782 and 1783, but none died. "If at this critical period," the author says, "the American war had not ceased; if the copious magazines,

[1] Parish of Duthil, vol. iv. p. 308.
[2] Vol. vi. p. 121.

particularly of pease, provided for the navy, had not been brought to sale, what a scene of desolation and horror would have been exhibited in this country!"

Many similar descriptions occur in different parts of the Statistical Account; but these will be sufficient to show the nature and intensity of the distress which has been occasionally felt from want.

The year 1783 depopulated some parts of the Highlands, and is mentioned as the reason why in these places the number of people was found to have diminished since Dr. Webster's survey. Most of the small farmers in general, as might be expected, were absolutely ruined by the scarcity; those of this description in the Highlands were obliged to emigrate to the Lowlands as common labourers,[1] in search of a precarious support. In some parishes, at the time of the last survey, the effect of the ruin of the farmers, during this bad year, was still visible in their depressed condition, and the increased poverty and misery of the common people, which is a necessary consequence of it.

In the account of the parish of Grange,[2] in the county of Banff, it is observed that the year 1783 put a stop to all improvements by green crops, and made the farmers think of nothing but raising grain. Tenants were most of them ruined. Before this period, consumptions were not nearly so frequent as they have been since. This may be justly attributed to the effects of the scarcity and bad victual in the year 1783, to the long inclement harvests in 1782 and 1787, in both which seasons the labourers were exposed to much cold and wet during the three months that the harvests continued; but principally to the change that has taken place in the manner of living among the lower ranks. Formerly every householder could command a draught of small beer, and killed a sheep now and then out of his own little flock; but now the case is different. The frequent want of the necessaries of life among the poor, their damp and stinking houses, and dejection of mind among the middling classes, appear to be the principal causes of the prevailing distempers and mortality of this parish. Young people are cut off by consumptions, and the more advanced by dropsies and nervous fevers.

The state of this parish, which, though there are others like it, may be considered as an exception to the average state of Scotland, was, without doubt, occasioned by the ruin of the tenants; and the effect is not to be wondered at, as no greater

[1] Parish of Kincardine, County of Ross, vol. viii. p. 505.
[2] Vol. ix. p. 550.

evil can easily happen to a country than the loss of agricultural stock and capital.

We may observe that the diseases of this parish are said to have increased, in consequence of the scarcity and bad victual of 1783. The same circumstance is noticed in many other parishes; and it is remarked, that though few people died of absolute famine, yet that mortal diseases almost universally followed.

It is remarked also, in some parishes, that the number of the births and marriages is affected by years of scarcity and plenty.

Of the parish of Dingwall,[1] in the county of Ross, it is observed that, after the scarcity of 1783, the births were 16 below the average, and 14 below the lowest number of late years. The year 1787 was a year of plenty; and the following year the births increased in a similar proportion, and were 17 above the average, and 11 above the highest of the other years.

In the account of Dunrossness,[2] in Orkney, the writer says that the annual number of marriages depends much on the seasons. In good years they may amount to thirty or upwards; but, when crops fail, will hardly come up to the half of that number.

The whole increase of Scotland, since the time of Dr. Webster's survey in 1755, is about 260,000,[3] for which a proportionate provision has been made in the improved state of agriculture and manufactures, and in the increased cultivation of potatoes, which in some places form two-thirds of the diet of the common people. It has been calculated that the half of the surplus of births in Scotland is drawn off in emigrations; and it cannot be doubted that this drain tends greatly to relieve the country, and to improve the condition of those which remain. Scotland is certainly still over-peopled, but not so much as it was a century or half a century ago, when it contained fewer inhabitants.

The details of the population of Ireland are but little known. I shall only observe, therefore, that the extended use of potatoes has allowed of a very rapid increase of it during the last century. But the cheapness of this nourishing root, and the small piece of ground which, under this kind of cultivation, will in average years produce the food for a family, joined to the ignorance and

[1] Vol. iii. p. i. [2] Vol. vii. p. 391.

[3] According to the returns in the enumeration of 1800, the whole population of Scotland was above 1,590,000, and therefore the increase up to that time was above 320,000. In 1810 the population was 1,805,688; and in 1820, 2,093,456.

depressed state of the people, which have prompted them to follow their inclinations with no other prospect than an immediate bare subsistence, have encouraged marriage to such a degree, that the population is pushed much beyond the industry and present resources of the country; and the consequence naturally is, that the lower classes of people are in the most impoverished and miserable state. The checks to the population are of course chiefly of the positive kind, and arise from the diseases occasioned by squalid poverty, by damp and wretched cabins, by bad and insufficient clothing, and occasional want. To these positive checks have, of late years, been added the vice and misery of intestine commotion, of civil war, and of martial law.

1825

According to the late enumeration in 1821, the population of Ireland amounted to 6,801,827, and in 1695 it was estimated only at 1,034,000. If these numbers be correct it affords an example of continued increase for 125 years together, at such a rate as to double the population in about 45 years—a more rapid increase than has probably taken place in any other country of Europe during the same length of time.

In the peculiar circumstances of Ireland, it would be very interesting to know the average mortality, and the proportions of births and marriages to the population. But unfortunately no correct parochial registers have been kept, and the information, however much to be desired, is unattainable.

CHAPTER XI

ON THE FRUITFULNESS OF MARRIAGES

It would be extremely desirable to be able to deduce from the registers of births, deaths, and marriages in different countries, and the actual population with the rate of increase, the real prolificness of marriages, and the true proportion of the born which lives to marry. Perhaps the problem may not be capable of an accurate solution; but we shall make some approximation towards it, and be able to account for some of the difficulties which appear in many registers, if we attend to the following considerations.

It should be premised, however, that in the registers of most countries there is reason to believe that the omissions in the births and deaths are greater than in the marriages; and consequently that the proportion of marriages is almost always given too great. In the enumerations which have lately taken place in this country, while it is supposed with reason that the registry of marriages is nearly correct, it is known with certainty that there are very great omissions in the births and deaths; and it is probable that similar omissions, though not perhaps to the same extent, prevail in other countries.

If we suppose a country where the population is stationary, where there are no emigrations, immigrations, or illegitimate children, and where the registers of births, deaths, and marriages are accurate, and continue always in the same proportion to the population, then the proportion of the annual births to the annual marriages will express the number of children born to each marriage, including second and third marriages, and when corrected for second and third marriages, it will also express the proportion of the born which lives to marry, once or oftener; while the annual mortality will accurately express the expectation of life.

But if the population be either increasing or decreasing, and the births, deaths, and marriages increasing or decreasing in the same ratio, such a movement will necessarily disturb all the proportions, because the events which are contemporary in the

registers are not contemporary in the order of nature, and an increase or decrease must have been taking place in the interval.

In the first place, the births of any year cannot in the order of nature have come from the contemporary marriages, but must have been derived principally from the marriages of preceding years.

To form a judgment then of the prolificness of marriages taken as they occur, including second and third marriages, let us cut off a certain period of the registers of any country (30 years for instance) and inquire what is the number of births which has been produced by all the marriages included in the period cut off. It is evident that with the marriages at the beginning of the period will be arranged a number of births proceeding from marriages not included in the period: and at the end, a number of births produced by the marriages included in the period will be found arranged with the marriages of a succeeding period. Now, if we could subtract the former number, and add the latter, we should obtain exactly all the births produced by the marriages of the period, and of course the real prolificness of those marriages. If the population be stationary, the number of births to be added would exactly equal the number to be subtracted, and the proportion of births to marriages, as found in the registers, would exactly represent the real prolificness of marriages. But if the population be either increasing or decreasing, the number to be added would never be equal to the number to be subtracted, and the proportion of births to marriages in the registers would never truly represent the prolificness of marriages. In an increasing population the number to be added would evidently be greater than the number to be subtracted, and of course the proportion of births to marriages as found in the registers would always be too small to represent the true prolificness of marriages. And the contrary effect would take place in a decreasing population. The question therefore is, what we are to add, and what to subtract, when the births and deaths are not equal.

The average proportion of births to marriages in Europe is about 4 to 1. Let us suppose, for the sake of illustration, that each marriage yields four children, one every other year.[1] In this case it is evident that, wherever we begin the period in the registers, the marriages of the preceding eight years will only

[1] In the statistical account of Scotland it is said that the average distance between the children of the same family has been calculated to be about two years.

have produced half of their births, and the other half will be arranged with the marriages included in the period, and ought to be subtracted from them. In the same manner the marriages of the last eight years of the period will only have produced half of their births, and the other half ought to be added. But half of the births of any eight years may be considered as nearly equal to all the births of the succeeding $3\frac{3}{4}$ years. In instances of the most rapid increase it will rather exceed the births of the next $3\frac{1}{2}$ years, and, in cases of slow increase, approach towards the births of the next 4 years. The mean therefore may be taken at $3\frac{3}{4}$ years.[1] Consequently, if we subtract the births of the first $3\frac{3}{4}$ years of the period, and add the births of the $3\frac{3}{4}$ years subsequent to the period, we shall have a number of births nearly equal to the births produced by all the marriages included in the period, and of course the prolificness of these marriages. But if the population of a country be increasing regularly, and the births, deaths, and marriages continue always to bear the same proportion to each other, and to the whole population, it is evident that all the births of any period will bear the same proportion to all the births of any other period of the same extent, taken a certain number of years later, as the births of any single year, or an average of five years, to the births of a single year, or an average of five years, taken the same number of years later; and the same will be true with regard to the marriages. And consequently, to estimate the prolificness of marriages, we have only to compare the marriages of the present year, or average of five years, with the births of a subsequent year, or average of five years, taken $3\frac{3}{4}$ years later.

We have supposed, in the present instance, that each marriage yields four births: but the average proportion of births to marriages in Europe is 4 to 1;[2] and as the population of Europe is known to be increasing at present, the prolificness of marriages must be greater than 4. If, allowing for this circumstance, we take the distance of 4 years instead of $3\frac{3}{4}$ years, we may not be far from the truth. And though undoubtedly the period will differ in different countries, yet it will not differ so much as we might at first imagine; because in countries where the marriages are more prolific, the births generally follow at shorter intervals, and where they are less prolific, at longer intervals;

[1] According to the rate of increase which has lately been taking place in England (1802), the period by calculation would be about $3\frac{3}{4}$ years.

[2] The true proportion will be greater, if, as before stated, there is reason to believe that in all registers the omissions in the births and deaths are more numerous than in the marriages.

and with different degrees of prolificness, the length of the period might still remain the same.[1]

It will follow from these observations, that the more rapid is the increase of population, the more will the real prolificness of marriages exceed the proportion of births to marriages in the registers.

The rule which has been here laid down attempts to estimate the prolificness of marriages taken as they occur; but this prolificness should be carefully distinguished from the prolificness of first marriages or of married women, and still more from the natural prolificness of women in general taken at the most favourable age. It is probable that the natural prolificness of women is nearly the same in most parts of the world; but the prolificness of marriages is liable to be affected by a variety of circumstances peculiar to each country, and particularly by the number of late marriages. In all countries the second and third marriages alone form a most important consideration, and materially influence the average proportions. According to Sussmilch, in all Pomerania, from 1748 to 1756 both included, the number of persons who married was 56,956, and of these 10,586 were widows and widowers.[2] According to Busching, in Prussia and Silesia, for the year 1781, out of 29,308 persons who married, 4841 were widows and widowers,[3] and consequently the proportion of marriages will be given full one-sixth too much. In estimating the prolificness of married women, the number of illegitimate births[4] would tend, though in a slight degree, to counterbalance the overplus of marriages; and as it is found that the number of widowers who marry again is greater than the number of widows, the whole of the correction should not on this account be applied; but in estimating the proportion of the born which lives to marry from a comparison of the marriages with the births or deaths, which is what we are now about to proceed to, the whole of this correction is always necessary.

It is obvious, in the second place, that the marriages of any year can never be contemporary with the births from which they have resulted, but must always be at such a distance from them

[1] In places where there are many migrations of people, the calculations will of course be disturbed. In towns, particularly, where there is a frequent change of inhabitants, and where it often happens that the marriages of the people in the neighbouring country are celebrated, the inferences from the proportion of births to marriages are not to be depended on.

[2] Göttliche Ordnung, vol. i. tables, p. 98.

[3] Sussmilch, vol. iii. tables, p. 95.

[4] In France, before the revolution, the proportion of illegitimate births was $\frac{1}{47}$ of the whole number. Probably it is less in this country.

as is equal to the average age of marriage. If the population be increasing, the marriages of the present year have resulted from a smaller number of births than the births of the present year, and of course the marriages, compared with the contemporary births, will always be too few to represent the proportion of the born which lives to marry; and the contrary will take place if the population be decreasing; and, to find this proportion, we must compare the marriages of any year with the births of a previous year at the distance of the average age of marriage.

But on account of the distance of this period, it may be often more convenient, though it is not essentially so correct, to compare the marriages with the contemporary deaths. The average age of marriage will almost always be much nearer to the average age of death than marriage is to birth; and consequently the annual marriages compared with the contemporary annual deaths will much more nearly represent the true proportion of the born living to marry than the marriages compared with the births.[1] The marriages compared with the births, after a proper allowance has been made for second and third marriages, can never represent the true proportion of the born living to marry, unless when the population is absolutely stationary; but although

[1] Dr. Price very justly says (Observ. on Revers. Pay. vol. i. p. 269, 4th edit.) " that the general effect of an increase while it is going on in a country is to render the proportion of persons marrying annually, to the annual deaths *greater* and to the annual births *less* than the true proportion marrying out of any given number born. This proportion generally lies between the other two proportions, but always nearest the first." In these observations I entirely agree with him, but in a note to this passage he appears to me to fall into an error. He says, that if the prolificness of marriages be increased (the *probabilities of life* and *the encouragement to marriage* remaining the same) both the annual births and burials would increase in proportion to the annual weddings. That the proportion of annual births would increase is certainly true; and I here acknowledge my error in differing from Dr. Price on this point in my last edition; but I still think that the proportion of burials to weddings would not necessarily increase under the circumstances here supposed.

The reason why the proportion of births to weddings increases is, that the births occurring in the order of nature considerably prior to the marriages which result from them, their increase will affect the register of births much more than the contemporary register of marriages. But the same reason by no means holds with regard to the deaths, the average age of which is generally later than the age of marriage. And in this case, after the first interval between birth and marriage, the permanent effect would be, that the register of marriages would be more affected by the increase of births than the contemporary register of deaths; and consequently the proportion of the burials to the weddings would be rather decreased than increased. From not attending to the circumstance that the average age of marriage may often be considerably earlier than the mean age of death, the general conclusion also which Dr. Price draws in this note does not appear to be strictly correct.

the population be increasing or decreasing, the average age of marriage may still be equal to the average of death; and in this case the marriages in the registers compared with the contemporary deaths (after the correction for second or third marriages) will nearly represent the true proportion of the born living to marry.[1] Generally, however, when an increase of population is going forwards, the average age of marriage is less than the average of death, and then the proportion of marriages, compared with the contemporary deaths, will be too great to represent the true proportion of the born living to marry; and, to find this proportion, we must compare the marriages of any particular year with the deaths of a subsequent year at such a distance from it in the registers as is equal to the difference between the average age of marriage and the average age of death.

There is no necessary connection between the average age of marriage and the average age of death. In a country, the resources of which will allow of a rapid increase of population, the expectation of life or the average age of death may be extremely high, and yet the age of marriage be very early; and the marriages then, compared with the contemporary deaths in the registers, would (even after the correction for second and third marriages) be very much too great to represent the true proportion of the born living to marry. In such a country we might suppose the average age of death to be 40, and the age of marriage only 20; and in this case, which however would be a rare one, the distance between marriage and death would be the same as between birth and marriage.

If we apply these observations to registers in general, though we shall seldom be able to obtain the true proportion of the born living to marry on account of the proportions of births, deaths, and marriages not remaining the same, and of our not knowing the average age of marriage, yet we may draw many useful inferences from the information which they contain, and reconcile some apparent contradictions; and it will generally be found that in those countries where the marriages bear a very large proportion to the deaths, we shall see reason to believe that the age of marriage is much earlier than the average age of death.

[1] The reader will be aware that, as all the born must die, deaths may in some cases be taken as synonymous with births. If we had the deaths registered of all the births which had taken place in a country during a certain period, distinguishing the married from the unmarried, it is evident that the number of those who died married, compared with the whole number of deaths, would accurately express the proportion of the births which had lived to marry.

In the Russian table for the year 1799, produced by Mr. Tooke, and referred to, p. 187, the proportion of marriages to deaths appeared to be as 100 to 210. When corrected for second and third marriages, by subtracting one-sixth from the marriages, it will be as 100 to 252. From which it would seem to follow, that out of 252 births 200 of them had lived to marry; but we cannot conceive any country to be so healthy as that 200 out of 252 should live to marry. If however we suppose, what seems to be probable, that the age of marriage in Russia is 15 years earlier than the expectation of life or the average age of death, then, in order to find the proportion which lives to marry, we must compare the marriages of the present year with the deaths 15 years later. Supposing the births to deaths to be (as stated p. 188) 183 to 100, and the mortality 1 in 50, the yearly increase will be about $\frac{1}{60}$ of the population; and consequently in 15 years the deaths will have increased a little above .28; and the result will be, that the marriages, compared with the deaths 15 years later, will be as 100 to 322. Out of 322 births it will appear that 200 live to marry, which, from the known healthiness of children in Russia, and the early age of marriage, is a possible proportion. The proportion of marriages to births, being as 100 to 385, the prolificness of marriages, according to the rule laid down, will be as 100 to 411; or each marriage will, on an average, including second and third marriages, produce 4.11 births.

The lists given in the earlier part of the chapter on Russia are probably not correct. It is suspected with reason that there are considerable omissions both in the births and deaths, but particularly in the deaths; and consequently the proportion of marriages is given too great. There may also be a further reason for this large proportion of marriages in Russia. The Empress Catherine, in her instructions for a new code of laws, notices a custom prevalent among the peasants, of parents obliging their sons, while actually children, to marry full-grown women, in order to save the expense of buying female slaves. These women, it is said, generally become the mistresses of the father; and the custom is particularly reprobated by the Empress as prejudicial to population. This practice would naturally occasion a more than usual number of second and third marriages, and of course more than usually increase the proportion of marriages to births in the registers.

In the Transactions of the Society at Philadelphia (vol. iii. No. vii. p. 25) there is a paper by Mr. Barton, entitled *Observations*

on the Probability of Life in the United States, in which it appears that the proportion of marriages to births is as 1 to $4\frac{1}{2}$. He mentions indeed $6\frac{1}{2}$, but his numbers give only $4\frac{1}{2}$. As however this proportion was taken principally from towns, it is probable that the births are given too low; and I think we may very safely take as many as five for the average of towns and country. According to the same authority the mortality is about 1 in 45; and if the population doubles every 25 years, the births would be about 1 in 20. The proportion of marriages to deaths would on these suppositions be as 1 to $2\frac{2}{9}$; and, corrected for second and third marriages, as 1 to 2.7 nearly. But we cannot suppose that out of 27 births 20 should live to marry. If however the age of marriage be ten years earlier than the mean age of death, which is highly probable, we must compare the marriages of the present year with the deaths ten years later, in order to obtain the true proportion of the born which lives to marry. According to the progress of population here stated, the increase of the deaths in ten years would be a little above .3, and the result will be, that 200 out of 351, or about 20 out of 35, instead of 20 out of 27, will live to marry.[1] The marriages compared with the births 4 years later, according to the rule laid down, will in this case give 5.58 for the prolificness of marriages. The calculations of Mr. Barton respecting the age to which half of the born live, cannot possibly be applicable to America in general. The registers, on which they are founded, are taken from Philadelphia, and one

[1] If the proportions mentioned by Mr. Barton be just, the expectation of life in America is considerably less than in Russia, which is the reason that I have taken only ten years for the difference between the age of marriage and the age of death, instead of fifteen years, as in Russia. According to the mode adopted by Dr. Price (vol. i. p. 272), of estimating the expectation of life in countries the population of which is increasing, this expectation in Russia would be about 38 (births $\frac{1}{26}$, deaths $\frac{1}{76}$, mean $\frac{1}{38}$), and supposing the age of marriage to be 23, the difference would be 15.

In America the expectation of life would, upon the same principles, be only $32\frac{1}{2}$ (births $\frac{1}{26}$, deaths $\frac{1}{45}$, mean $\frac{1}{32\frac{1}{2}}$); and supposing the age of marriage $22\frac{1}{2}$, the difference would be 10.

Since this was written, I have seen reason to believe, from some calculations by Mr. Milne, actuary to the Sun Life Assurance Society, that Dr. Price's mode of estimating the expectation of life in countries that are increasing is by no means correct, and that the true expectation of life in such countries lies very much nearer the proportion of the annual mortality, than a mean between the annual mortality and the proportion of annual births; but I retain the mean proportion in the calculations of this chapter, because I find that this mean expresses more nearly the period when the deaths will equal the present births, or accord with the present marriages, than the distance of the expectation of life. In a progressive country, where the annual births considerably exceed the annual deaths, the period at which the annual deaths will equal the present annual births is less distant than the expectation of life.

or two small towns and villages, which do not appear to be so healthy as the moderate towns of Europe, and therefore can form no criterion for the country in general.

In England the average proportion of marriages to births appears of late years to have been about 100 to 350. If we add $\frac{1}{7}$ to the births instead of $\frac{1}{6}$, which in the chapter on *The Checks to Population in England* I conjectured might be nearly the amount of the omissions in the births and deaths, this will allow for the circumstance of illegitimate births; and the marriages will then be to the births as 1 to 4, to the deaths as 1 to 3.[1] Corrected for second and third marriages, the proportion of marriages to deaths will be as 1 to 3.6. Supposing the age of marriage in England about 7 years earlier than the mean age of death, the increase in these 7 years, according to the present progress of population of $\frac{1}{120}$ yearly, would be .06, and the proportion living to marry would be 200 out of 381, or rather more than half.[2] The marriages compared with the births four years later will give 4.136 for the prolificness of marriages.

These instances will be sufficient to show the mode of applying the rules which have been given, in order to form a judgment, from registers, of the prolificness of marriages, and the proportion of the born which lives to marry; but it must still be remembered that they are only approximations, and intended rather to explain apparent difficulties than to obtain results which can be depended upon as correct.

It will be observed how very important the correction for second and third marriages is. Supposing each marriage to yield four births, and the births and deaths to be equal, it would at first appear necessary that, in order to produce this effect, exactly half of the born should live to marry; but if, on account of the second and third marriages, we subtract $\frac{1}{6}$ from the marriages, and then compare them with the deaths, the proportion will be as 1 to $4\frac{4}{5}$; and it will appear that, instead of one-half, it will only be necessary that 2 children out of $4\frac{4}{5}$ should live to marry. Upon the same principle, if the births were to the marriages as 4 to 1, and exactly half of the born live to marry, it might be supposed at first that the population would be stationary; but if we subtract $\frac{1}{6}$ from the marriages, and then take the proportion of deaths to marriages as 4 to 1, we shall find that the deaths in the registers, compared with the marriages, would

[1] This applies to the state of population before 1800.

[2] Births $\frac{1}{36}$, deaths $\frac{1}{120}$, mean $\frac{1}{55}$; and on the supposition that the age of marriage is 28, the difference would be 7.

only be as $3\frac{1}{3}$ to 1; and the births would be to the deaths as 4 to $3\frac{1}{3}$, or 12 to 10, which is a tolerably fast rate of increase.

It should be further observed, that as a much greater number of widowers marry again than of widows, if we wish to know the proportion of males which lives to marry, we must subtract full $\frac{1}{5}$ from the marriages instead of $\frac{1}{8}$.[1] According to this correction, if each marriage yielded 4 births, it would only be necessary that two male children out of 5 should live to marry in order to keep up the population; and if each marriage yielded 5 births, less than one-third would be necessary for this purpose; and so for the other calculations. In estimating the proportion of males living to marry, some allowance ought also to be made for the greater proportion of male births.

Three causes appear to operate in producing an excess of the births above the deaths: 1, the prolificness of marriages; 2, the proportion of the born which lives to marry; and 3, the earliness of these marriages compared with the expectation of life, or the shortness of a generation by marriage and birth, compared with the passing away of a generation by death. This latter cause Dr. Price seems to have omitted to consider. For though he very justly says that the rate of increase, supposing the prolific powers the same, depends upon the encouragement to marriage, and the expectation of a child just born; yet in explaining himself he seems to consider an increase in the expectation of life merely as it affects the increase of the number of persons who reach maturity and marry, and not as it affects, besides, the distance between the age of marriage and the age of death. But it is evident that, if there be any principle of increase, that is, if one marriage in the present generation yields more than one in the next, including second and third marriages, the quicker these generations are repeated, compared with the passing away of a generation by death, the more rapid will be the increase.

A favourable change in either of these three causes, the other two remaining the same, will clearly produce an effect upon population, and occasion a greater excess of the births above the deaths in the registers. With regard to the two first causes, though an increase in either of them will produce the same kind of effect on the proportion of births to deaths, yet their effects on

[1] Of 28,473 marriages in Pomerania, 5964 of the men were widowers. Sussmilch, vol. i. tables, p. 98. And according to Busching, of 14,759 marriages in Prussia and Silesia, 3071 of the men were widowers. Sussmilch, vol. iii. tables, p. 95. Muret calculates that 100 men generally marry 110 women. Mémoires par la Société Economique de Berne. Année 1766, première partie, p. 30.

the proportion of marriages to births will be in opposite directions. The greater is the prolificness of marriages, the greater will be the proportion of births to marriages; and the greater is the number of the born which lives to be married, the less will be the proportion of births to marriages.[1] Consequently, if within certain limits, the prolificness of marriages and the number of the born living to marry increase at the same time, the proportion of births to marriages in the registers may still remain unaltered. And this is the reason why the registers of different countries, with respect to births and marriages, are often found the same under very different rates of increase.

The proportion of births to marriages, indeed, forms no criterion whatever by which to judge of the rate of increase. The population of a country may be stationary or declining with a proportion of 5 to 1, and may be increasing with some rapidity with a proportion of 4 to 1. But given the rate of increase, which may be obtained from other sources, it is clearly desirable to find in the registers a small rather than a large proportion of births to marriages; because the smaller this proportion is, the greater must be the proportion of the born which lives to marry, and of course the more healthy must be the country.

Crome[2] observes that, when the marriages of a country yield less than 4 births, the population is in a very precarious state; and he estimates the prolificness of marriages by the proportion of yearly births to marriages. If this observation were just, the population of many countries of Europe would be in a precarious state, as in many countries the proportion of births to marriages in the registers is rather below than above 4 to 1.

[1] Dr. Price himself has insisted strongly upon this (vol. i. p. 270, 4th edit.), and yet he says (p. 275) that healthfulness and prolificness are probably causes of increase seldom separated, and refers to registers of births and weddings as a proof of it. But though these causes may undoubtedly exist together, yet if Dr. Price's reasoning be just, such co-existence cannot possibly be inferred from the lists of births and weddings. Indeed the two countries, Sweden and France, to the registers of which he refers as showing the prolificness of their marriages, are known to be by no means remarkably healthy; and the registers of towns to which he alludes, though they may show, as he intends, a want of prolificness, yet, according to his previous reasoning, show at the same time great healthiness, and therefore ought not to be produced as a proof of the absence of both. The general fact that Dr. Price wishes to establish may still remain true, that country situations are both more healthy and more prolific than towns; but this fact certainly cannot be inferred merely from lists of births and marriages. With regard to the different countries of Europe, it will generally be found that those are the most healthy which are the least prolific, and those the most prolific which are the least healthy. The earlier age of marriage in unhealthy countries is the obvious reason of this fact.

[2] Ueber die Bevölkerung der Europäis. Staat. p. 91.

It has been shown in what manner this proportion in the registers should be corrected, in order to make it a just representation of the prolificness of marriages; and if a large part of the born live to marry, and the age of marriage be considerably earlier than the expectation of life, such a proportion in the registers is by no means inconsistent with a rapid increase. In Russia it has appeared that the proportion of births to marriages is less than 4 to 1; and yet its population increases faster than that of any other nation in Europe. In England the population increases more rapidly than in France; and yet in England the proportion of births to marriages, when allowance has been made for omissions, is about 4 to 1, in France $4\frac{4}{5}$ to 1. To occasion so rapid a progress as that which has taken place in America, it will indeed be necessary that all the causes of increase should be called into action; and if the prolificness of marriages be very great, the proportion of births to marriages will certainly be above 4 to 1: but in all ordinary cases, where the whole power of procreation has not room to expand itself, it is surely better that the actual increase should arise from that degree of healthiness in the early stages of life which causes a great proportion of the born to live to maturity and to marry, than from a great degree of prolificness accompanied by a great mortality. And consequently in all ordinary cases a proportion of births to marriages as 4, or less than 4, to 1 cannot be considered as an unfavourable sign.

It should be observed that it does not follow that the marriages of a country are early, or that the preventive check to population does not prevail, because the greater part of the born lives to marry. In such countries as Norway and Switzerland, where half of the born live to above 40, it is evident that, though rather more than half live to marry, a large portion of the people between the ages of 20 and 40 would be living in an unmarried state, and the preventive check would appear to prevail to a great degree. In England it is probable that half of the born live to above 35;[1] and though rather more than half live to marry, the preventive check might prevail considerably (as we know it does), though not to the same extent as in Norway and Switzerland.

The preventive check is perhaps best measured by the smallness of the proportion of yearly births to the whole population. The proportion of yearly marriages to the population is only a just criterion in countries similarly circumstanced, but is

[1] At present (1825), and for the last ten, or even twenty years, there is reason to believe that half of the born live to 45 years.

incorrect where there is a difference in the prolificness of marriages or in the proportion of the population under the age of puberty, and in the rate of increase. If all the marriages of a country, be they few or many, take place young, and be consequently prolific, it is evident that, to produce the same proportion of births, a smaller proportion of marriages will be necessary; or with the same proportion of marriages a greater proportion of births will be produced. This latter case seems to be applicable to France, where both the births and deaths are greater than in Sweden, though the proportion of marriages is nearly the same, or rather less. And when, in two countries compared, one of them has a much greater part of its population under the age of puberty than the other, it is evident that any general proportion of the yearly marriages to the whole population will not imply the same operation of the preventive check among those of a marriageable age.

It is, in part, the small proportion of the population under the age of puberty, as well as the influx of strangers, that occasions in towns a greater proportion of marriages than in the country, although there can be little doubt that the preventive check prevails most in towns. The converse of this will also be true; and consequently in such a country as America, where half of the population is under sixteen, the proportion of yearly marriages will not accurately express how little the preventive check really operates.

But on the supposition of nearly the same natural prolificness in the women of most countries, the smallness of the proportion of births will generally indicate, with tolerable exactness, the degree in which the preventive check prevails, whether arising principally from late, and consequently unprolific, marriages, or from a large proportion of the population above the age of puberty dying unmarried.

That the reader may see at once the rate of increase, and the period of doubling, which would result from any observed proportion of births to deaths, and of these to the whole population, I subjoin two tables from Sussmilch, calculated by Euler, which I believe are very correct. The first is confined to the supposition of a mortality of 1 in 36, and therefore can only be applied to countries where such a mortality is known to take place. The other is general, depending solely upon the proportion which the excess of the births above the burials bears to the whole population, and therefore may be applied universally to all countries, whatever may be the degree of their

mortality. I have now also (1825) added a third table as convenient on account of the custom of decennial enumerations in this and some other countries. It is calculated by the Rev. B. Bridge, of Peter House, Cambridge, and shows the rate of increase or period of doubling, from the observed percentage increase of any ten years, supposing such rate of increase to continue.

It will be observed that, when the proportion between the births and burials is given, the period of doubling will be shorter, the greater the mortality; because the births as well as deaths are increased by this supposition, and they both bear a greater proportion to the whole population than if the mortality were smaller, and there were a greater number of people in advanced life.

The mortality of Russia, according to Mr. Tooke, is 1 in 58, and the proportion of births 1 in 26. Allowing for the omissions in the burials, if we assume the mortality to be 1 in 52, then the births will be to the deaths as 2 to 1, and the proportion which the excess of births bears to the whole population will be $\frac{1}{52}$.[1] According to Table II. the period of doubling will, in this case, be about 36 years. But if we were to keep the proportion of births to deaths as 2 to 1, and suppose a mortality of 1 in 36, as in Table I., the excess of births above the burials would be $\frac{1}{36}$ of the whole population, and the period of doubling would be only 25 years.

TABLE I

When in any country there are 103,000 persons living, and the mortality is 1 in 36

If the proportion of deaths to births be as	Then the excess of the births will be	The proportion of the excess of the births, to the whole population, will be	And therefore the period of doubling will be
10: 11	277	$\frac{1}{360}$	250 years
12	555	$\frac{1}{180}$	125
13	833	$\frac{1}{120}$	$83\frac{1}{2}$
14	1110	$\frac{1}{90}$	$62\frac{3}{4}$
15	1388	$\frac{1}{72}$	$50\frac{1}{4}$
16	1666	$\frac{1}{60}$	42
17	1943	$\frac{1}{51}$	$35\frac{3}{4}$
18	2221	$\frac{1}{45}$	$31\frac{3}{8}$
19	2499	$\frac{1}{40}$	28
20	2777	$\frac{1}{36}$	$25\frac{3}{10}$
22	3332	$\frac{1}{30}$	$21\frac{1}{2}$
25	4165	$\frac{1}{24}$	17
30	5554	$\frac{1}{18}$	$12\frac{1}{8}$

[1] The proportions here mentioned are different from those which have been taken from the additional table in Mr. Tooke's second edition; but they are assumed here as more easily and clearly illustrating the subject.

TABLE II

The proportion of the excess of births above the deaths to the whole of the living.	Periods of doubling in years and ten thousandth parts.	The proportion of the excess of births above the deaths to the whole of the living.	Periods of doubling in years and ten thousandth parts.
1: 10	7.2722	1: 21	14.9000
1: 11	7.9659	1: 22	15.5932
1: 12	8.6595	1: 23	16.2864
1: 13	9.3530	1: 24	16.9797
1: 14	10.0465	1: 25	17.6729
1: 15	10.7400	1: 26	18.3662
1: 16	11.4333	1: 27	19.0594
1: 17	12.1266	1: 28	19.7527
1: 18	12.8200	1: 29	20.4458
1: 19	13.5133	1: 30	21.1391
1: 20	14.2066		
1: 32	22.5255	1: 210	145.9072
1: 34	23.9119	1: 220	152.8387
1: 36	25.2983	1: 230	159.7702
1: 38	26.6847	1: 240	166.7017
1: 40	28.0711	1: 250	173.6332
1: 42	29.4574	1: 260	180.5647
1: 44	30.8438	1: 270	187.4961
1: 46	32.2302	1: 280	194.4275
1: 48	43.6161	1: 290	201.3590
1: 50	35.0029	1: 300	208.2905
1: 55	38.4687	1: 310	215.2220
1: 60	41.9345	1: 320	222.1535
1: 65	45.4003	1: 330	229.0850
1: 70	48.8661	1: 340	236.0164
1: 75	52.3318	1: 350	242.9479
1: 80	55.7977	1: 360	249.8794
1: 85	59.2634	1: 370	256.8109
1: 90	62.7292	1: 380	263.7425
1: 95	66.1950	1: 390	270.6740
1: 100	69.6607	1: 400	277.6055
1: 110	76.5923	1: 410	284.5370
1: 120	83.5230	1: 420	291.4685
1: 130	90.4554	1: 430	298.4000
1: 140	97.3868	1: 440	305.3314
1: 150	104.3183	1: 450	312.2629
1: 160	111.2598	1: 460	319.1943
1: 170	118.1813	1: 470	326.1258
1: 180	125.1128	1: 480	333.0573
1: 190	132.0443	1: 490	339.9888
1: 200	138.9757	1: 500	346.9202
		1: 1000	693.49

TABLE III

I. Per-centage increase in ten years.	II. Period of doubling.	I. Per-centage increase in ten years.	II. Period of doubling.	I. Per-centage increase in ten years.	II. Period of doubling.
	Years.		Years.		Years.
1	696.60	16	46.70	30.5	26.03
1.5	465.55	16.5	45.38	31	25.67
2	350.02	17	44.14	31.5	25.31
2.5	280.70	17.5	42.98	32	24.96
3	234.49	18	41.87	32.5	24.63
3.5	201.48	18.5	40.83	33	24.30
4	176.73	19	39.84	33.5	23.99
4.5	157.47	19.5	38.91	34	23.68
5	142.06	20	38.01	34.5	23.38
5.5	129.46			35	23.09
6	118.95	20.5	37.17	35.5	22.81
6.5	110.06	21	36.36	36	22.54
7	102.44	21.5	35.59	36.5	22.27
7.5	95.84	22	34.85	37	22.01
8	90.06	22.5	34.15	37.5	21.76
8.5	84.96	23	33.48	38	21.52
9	80.43	23.5	32.83	38.5	21.28
9.5	76.37	24	32.22	39	21.04
10	72.72	24.5	31.63	39.5	20.82
		25	31.06	40	20.61
10.5	69.42	25.5	30.51		
11	66.41	26	29.99	41	20.17
11.5	63.67	26.5	29.48	42	19.76
12	61.12	27	28.99	43	19.37
12.5	58.06	27.5	28.53	44	19.00
13	56.71	28	28.07	45	18.65
13.5	54.73	28.5	27.65	46	18.31
14	52.90	29	27.22	47	17.99
14.5	51.19	29.5	26.81	48	17.68
15	49.59	30	26.41	49	17.38
15.5	48.10			50	17.06

CHAPTER XII

EFFECTS OF EPIDEMICS ON REGISTERS OF BIRTHS, DEATHS, AND MARRIAGES

It appears clearly from the very valuable tables of mortality, which Sussmilch has collected, and which include periods of 50 or 60 years, that all the countries of Europe are subject to periodical sickly seasons, which check their increase; and very few are exempt from those great and wasting plagues which, once or twice perhaps in a century, sweep off the third or fourth part of their inhabitants. The way in which these periods of mortality affect all the general proportions of births, deaths, and marriages is strikingly illustrated in the tables for Prussia and Lithuania, from the year 1692 to the year 1757.[1]

The table, from which this is copied, contains the marriages, births, and deaths for every particular year during the whole period: but to bring it into a smaller compass, I have retained only the general average drawn from the shorter periods of five and four years, except where the numbers for the individual years presented any fact worthy of particular observation. The year 1711, immediately succeeding the great plague, is not included by Sussmilch in any general average; but he has given the particular numbers, and if they be accurate they show the very sudden and prodigious effect of a great mortality on the number of marriages.

Sussmilch calculates that above one-third of the people was destroyed by the plague; and yet, notwithstanding this great diminution of the population, it will appear by a reference to the table that the number of marriages in the year 1711 was very nearly double the average of the six years preceding the plague.[2]

[1] Sussmilch, Göttliche Ordnung, vol. i. table xxi. p. 83 of the tables.

[2] The number of people before the plague, according to Sussmilch's calculations (vol. i. ch. ix. sect. 173), was 570,000, from which if we subtract 247,733, the number dying in the plague, the remainder, 322,267, will be the population after the plague; which, divided by the number of marriages and the number of births for the year 1711, makes the marriages about one-twenty-sixth part of the population, and the births about one-tenth part. Such extraordinary proportions could only occur in any country in an individual year. If they were to continue, they would double the population in less than ten years. It is possible that there may be a mistake in the table, and that the births and marriages of

TABLE IV

Annual Average.	Marriages.	Births.	Deaths.	Proportion of marriages to births.	Proportion of deaths to births.
5 years to 1697	5,747	19,715	14,862	10: 34	100: 132
5 years to 1702	6,070	24,112	14,474	10: 39	100: 165
6 years to 1708	6,082	26,896	16,430	10: 44	100: 163
In 1709 & 1710	a plague	numbers destroyed in 2 years	247,733		
In 1711	12,028	32,522	10,131	10: 27	100: 320
In 1712	6,267	22,970	10,445	10: 36	100: 220
5 years to 1716	4,968	21,603	11,984	10: 43	100: 180
5 years to 1721	4,324	21,396	12,039	10: 49	100: 177
5 years to 1726	4,719	21,452	12,863	10: 45	100: 166
5 years to 1731	4,808	29,554	12,825	10: 42	100: 160
4 years to 1735	5,424	22,692	15,475	10: 41	100: 146
In 1736	5,280	21,859	26,371	Epidemic	
In 1737	5,765	18,930	24,480	years	
5 years to 1742	5,582	22,099	15,255	10: 39	100: 144
4 years to 1746	5,469	25,275	15,117	10: 46	100: 167
5 years to 1751	6,423	28,235	17,272	10: 43	100: 163
5 years to 1756	5,599	28,892	19,154	10: 50	100: 148
In the 16 years before the plague	95,585	380,516	245,763	10: 39	100: 154
In 46 years after the plague	248,777	1,083,872	690,324	10: 43	100: 157
In 62 good years	344,361	1,464,388 936,087	936,087	10: 43	100: 156
More born than died		528,301			
In the two plague years	5,477	23,977	247,733		
In all the 64 years including the plague	340,838	1,488,365 1,183,820	1,183,820	10: 42	100: 125
More born than died		304,545			

To produce this effect, we may suppose that almost all who were at the age of puberty were induced, from the demand for labour and the number of vacant employments, immediately to marry. This immense number of marriages in the year could not possibly be accompanied by a great proportional number of births, because we cannot suppose that the new marriages could each yield more than one birth in the year, and the rest must come from the marriages which had continued unbroken through the plague. We cannot therefore be surprised that the proportion of births to marriages in this year should be only 2.7 to 1, or 27 to 10. But though the proportion of births to marriages could not be great; yet, on account of the extraordinary number of marriages, the absolute number of births must be great; and as the number of deaths would naturally be small, the proportion of births to deaths is prodigious, being 320 to 100; an excess of births as great, perhaps, as has ever been known in America.

In the next year, 1712, the number of marriages must of course diminish exceedingly; because, nearly all who were at the age of puberty having married the year before, the marriages of this year would be supplied principally by those who had arrived at this age subsequent to the plague. Still, however, as all who were marriageable had not probably married the year before, the number of marriages in the year 1712 is great in proportion to the population; and, though not much more than half of the number which took place during the preceding year, is greater than the average number in the last period before the plague. The proportion of births to marriages in 1712, though greater than in the preceding year, on account of the smaller comparative number of marriages, is, with reference to other countries, not great, being as 3.6 to 1, or 36 to 10. But the proportion of births to deaths, though less than in the preceding year, when so very large a proportion of the people married, is, with reference to other countries, still unusually great, being as 220 to 100; an excess of births which, calculated on a mortality of 1 in 36, would double the population of a country (according to Table I. page 292) in 21⅛ years.

From this period the number of annual marriages begins to be regulated by the diminished population, and of course to sink considerably below the average number of marriages before the

the plague years are included in the year 1711; though as the deaths are carefully separated, it seems very strange that it should be so. It is however a matter of no great importance. The other years are sufficient to illustrate the general principle.

plague, depending principally on the number of persons rising annually to a marriageable state. In the year 1720, about nine or ten years after the plague, the number of annual marriages, either from accident, or the beginning operation of the preventive check, is the smallest; and it is at this time that the proportion of births to marriages rises very high. In the period from 1717 to 1721 the proportion, as appears by the table, is 49 to 10: and in the particular years 1719 and 1720, it is 50 to 10 and 55 to 10.

Sussmilch draws the attention of his readers to the fruitfulness of marriages in Prussia after the plague, and mentions the proportion of 50 annual births to 10 annual marriages as a proof of it. There are the best reasons from the general average for supposing that the marriages in Prussia at this time were very fruitful; but certainly the proportion of this individual year, or even period, is not a sufficient proof of it, being evidently caused by a smaller number of marriages taking place in the year, and not by a greater number of births.[1] In the two years immediately succeeding the plague, when the excess of births above the deaths was so astonishing, the births bore a small proportion to the marriages: and according to the usual mode of calculation, it would have followed that each marriage yielded only 2.7 or 3.6 children. In the last period of the table (from 1752 to 1756) the births are to the marriages as 5 to 1, and in the individual year 1756, as 6.1 to 1: and yet during this period the births are to the deaths only as 148 to 100, which could not have been the case if the high proportion of births to marriages had indicated a much greater number of births than usual, instead of a smaller number of marriages.

The variations in the proportion of births to deaths, in the different periods of 64 years included in the table, deserve particular attention. If we were to take an average of the four years immediately succeeding the plague, the births would be to the deaths in the proportion of above 22 to 10, which, supposing the mortality to be 1 in 36, would double the population in twenty-one years. If we take the twenty years from 1711 to 1731, the average proportion of the births to deaths will appear to be about 17 to 10, a proportion which (according to Table I. page 292) would double the population in about thirty-five years. But if, instead of 20 years, we were to take the whole period of 64 years, the average proportion of births to deaths turns out to be but a little more than 12 to 10; a proportion which would not double the population in less than 125 years. If we were to

[1] Sussmilch, Göttliche Ordnung, vol. i. c. v. s. lxxxvi. p. 175.

include the mortality of the plague, or even of the epidemic years 1736 and 1737, in too short a period, the deaths might exceed the births, and the population would appear to be decreasing.

Sussmilch thinks that, instead of 1 in 36, the mortality in Prussia, after the plague, might be 1 in 38; and it may appear perhaps to some of my readers that the plenty occasioned by such an event ought to make a still greater difference. Dr. Short has particularly remarked that an extraordinary healthiness generally succeeds any very great mortality;[1] and I have no doubt that the observation is just, comparing similar ages together. But, under the most favourable circumstances, infants under three years are more subject to death than at other ages; and the extraordinary proportion of children which usually follows a very great mortality counterbalances at first the natural healthiness of the period, and prevents it from making much difference in the general mortality.

If we divide the population of Prussia after the plague by the number of deaths in the year 1711, it will appear that the mortality was nearly 1 in 31, and was therefore increased rather than diminished, owing to the prodigious number of children born in that year. But this greater mortality would certainly cease as soon as these children began to rise into the firmer stages of life, and then probably Sussmilch's observations would be just. In general, however, we shall observe that a great previous mortality produces a more sensible effect on the births than on the deaths. By referring to the table it will appear that the number of annual deaths regularly increases with the increasing population, and nearly keeps up the same relative proportion all the way through. But the number of annual births is not very different during the whole period, though in this time the population had more than doubled itself; and therefore the *proportion* of births to the whole population, at first and at last, must have changed in an extraordinary degree.

It will appear therefore how liable we should be to err in assuming a given proportion of births for the purpose of estimating the past population of any country. In the present instance, it would have led to the conclusion that the population was scarcely diminished by the plague, although from the number of deaths it was known to be diminished one-third.

Variations of the same kind, though not in the same degree, appear in the proportions of births, deaths, and marriages, in all

[1] History of Air, Seasons, etc., vol. ii. p. 344.

the tables which Sussmilch has collected; and as writers on these subjects have been too apt to form calculations for past and future times from the proportions of a few years, it may be useful to draw the attention of the reader to a few more instances of such variations.

In the Churmark of Brandenburgh,[1] during 15 years, ending with 1712, the proportion of births to deaths was nearly 17 to 10. For 6 years, ending with 1718, the proportion sunk to 13 to 10; for 4 years, ending with 1752, it was only 11 to 10; and for 4 years, ending with 1756, 12 to 10. For 3 years, ending with 1759, the deaths very greatly exceeded the births. The proportion of the births to the whole population is not given; but it is not probable that the great variations observable in the proportion of births to deaths should have arisen solely from the variations in the deaths. The proportion of births to marriages is tolerably uniform, the extremes being only 38 to 10 and 35 to 10, and the mean about 37 to 10. In this table no very great epidemics occur till the 3 years beginning with 1757, and beyond this period the lists are not continued.

In the dukedom of Pomerania,[2] the average proportion of births to deaths for 60 years (from 1694 to 1756 both included) was 138 to 100: but in some of the periods of six years it was as high as 177 to 100, and 155 to 100. In others it sunk as low as 124 to 100, and 130 to 100. The extremes in the proportions of births to marriages of the different periods of 5 and 6 years were 36 to 10 and 43 to 10, and the mean of the 60 years about 38 to 10. Epidemic years appear to have occurred occasionally, in three of which the deaths exceeded the births; but this temporary diminution of population produced no corresponding diminution of births, and the two individual years which contain the greatest proportion of marriages in the whole table occur, one in the year after, and the other two years after epidemics. The excess of deaths however was not great till the three years ending with 1759, with which the table concludes.

In the Neumark of Brandenburgh,[3] for 60 years, from 1695 to 1756 both included, the average proportion of births to deaths in the first 30 years was 148 to 100, in the last 30 years 127 to 100, in the whole 60 years 136 to 100. In some periods of 5 years it was as high as 171 and 167 to 100. In others as low as 118 and 128 to 100. For 5 years ending with 1726, the yearly average of births was 7012: for 5 years ending with 1746, it was 6927, from

[1] Sussmilch's Göttliche Ordnung, vol. i. tables, p. 88.
[2] Id. vol. i. tables, p. 91. [3] Id. p. 99.

which, judging by the births, we might infer that the population had decreased in this interval of 20 years; but it appears from the average proportion of births and deaths during this period that it must have considerably increased, notwithstanding the intervention of some epidemic years. The proportion of births to the whole population must therefore have decidedly changed. Another interval of 20 years in the same table gives a similar result, both with regard to the births and marriages. The extremes of the proportion of births to marriages are 34 to 10 and 42 to 10, the mean about 38 to 10. The 3 years beginning with 1757 were, as in the other tables, very fatal years.

In the dukedom of Magdeburgh,[1] during 64 years ending with 1756, the average proportion of births to deaths was 123 to 100; in the first 28 years of the period 142 to 100, and in the last 34 years only 112 to 100; during one period of 5 years it was as high as 170 to 100; and in two periods the deaths exceeded the births. Slight epidemics appear to be interspersed rather thickly throughout the table. In the two instances, where three or four occur in successive years and diminish the population, they are followed by an increase of marriages and births. The extremes of the proportions of births to marriages are 42 to 10 and 34 to 10, and the mean of the 64 years 39 to 10. On this table Sussmilch remarks, that though the average number of deaths shows an increased population of one-third from 1715 or 1720, yet the births and marriages would prove it to be stationary, or even declining. In drawing this conclusion, however, he adds the three epidemic years ending with 1759, during which both the marriages and births seem to have diminished.

In the principality of Halberstadt,[2] the average proportion of births to deaths for 68 years, ending with 1756, was 124 to 100; but in some periods of 5 years it was as high as 160 to 100, and in others as low as 110 to 100. The increase in the whole 68 years was considerable, and yet for 5 years ending with 1723, the average number of births was 2818; and for 4 years ending with 1750, 2628, from which it would appear that the population in 27 years had considerably diminished. A similar appearance occurs with regard to the marriages during a period of 32 years.

In the 5 years ending with 1718, they were 727; in the 5 years ending with 1750, 689. During both these periods the proportion of deaths would have shown a considerable increase. Epidemics seem to have occurred frequently; and in almost all the instances in which they were such as for the deaths to exceed the

[1] Sussmilch, vol. i. tables, p. 103.

[2] Id. p. 108.

births, they were immediately succeeded by a more than usual proportion of marriages, and in a few years by an increased proportion of births. The greatest number of marriages in the whole table occurs in the year 1751, after an epidemic in the year 1750, in which the deaths had exceeded the births above one-third, and the four or five following years contain the largest proportion of births. The extremes of the proportions of births to marriages are 42 to 10 and 34 to 10; the mean of the 68 years 38 to 10.

The remaining tables contain similar results; but these will be sufficient to show the variations which are continually occurring in the proportions of the births and marriages, as well as of the deaths, to the whole population.

It will be observed that the least variable of the proportions is that which the births and marriages bear to each other; and the obvious reason is, that this proportion is principally influenced by the prolificness of marriages, which will not of course be subject to great changes. We can hardly indeed suppose, that the prolificness of marriages should vary so much as the different proportions of births to marriages in the tables. Nor is it necessary that it should, as another cause will contribute to produce the same effect. The births which are contemporary with the marriages of any particular year belong principally to marriages which had taken place some years before; and therefore, if for four or five years a large proportion of marriages were to take place, and then accidentally for one or two years a small proportion, the effect would be a large proportion of births to marriages in the registers during these one or two years; and on the contrary, if for four or five years few marriages comparatively were to take place, and then for one or two years a great number, the effect would be a small proportion of births to marriages in the registers. This was strikingly illustrated in the table for Prussia and Lithuania, and would be confirmed by an inspection of all the other tables collected by Sussmilch; in which it appears that the extreme proportions of births to marriages are generally more affected by the number of marriages than the number of births, and consequently arise more from the variations in the disposition or encouragement to matrimony than from the variations in the prolificness of marriages.

The common epidemical years which are interspersed throughout these tables, will not of course have the same effects on the marriages and births as the great plague in the table for Prussia; but in proportion to their magnitude, their operation will in

general be found to be similar. From the registers of many other countries, and particularly of towns, it appears that the visitations of the plague were frequent at the latter end of the 17th and the beginning of the 18th centuries.

In contemplating the plagues and sickly seasons which occur in these tables after a period of rapid increase, it is impossible not to be impressed with the idea that the number of inhabitants had in these instances exceeded the food and the accommodations necessary to preserve them in health. The mass of the people would, upon this supposition, be obliged to live worse, and a greater number of them would be crowded together in one house; and these natural causes would evidently contribute to produce sickness, even though the country, absolutely considered, might not be crowded and populous. In a country even thinly inhabited, if an increase of population take place before more food is raised, and more houses are built, the inhabitants must be distressed for room and subsistence. If in the Highlands of Scotland, for the next ten or twelve years, the marriages were to be either more frequent or more prolific, and no emigration were to take place, instead of five to a cottage, there might be seven; and this, added to the necessity of worse living, would evidently have a most unfavourable effect on the health of the common people.

CHAPTER XIII

GENERAL DEDUCTIONS FROM THE PRECEDING VIEW OF SOCIETY

That the checks which have been mentioned are the immediate causes of the slow increase of population, and that these checks result principally from an insufficiency of subsistence, will be evident from the comparatively rapid increase which has invariably taken place whenever, by some sudden enlargement in the means of subsistence, these checks have in any considerable degree been removed.

It has been universally remarked that all new colonies settled in healthy countries, where room and food were abundant, have constantly made a rapid progress in population. Many of the colonies from ancient Greece, in the course of one or two centuries, appear to have rivalled, and even surpassed, their mother cities. Syracuse and Agrigentum in Sicily, Tarentum and Locri in Italy, Ephesus and Miletus in Lesser Asia, were, by all accounts, at least equal to any of the cities of ancient Greece. All these colonies had established themselves in countries inhabited by savage and barbarous nations, which easily gave place to the new settlers, who had of course plenty of good land. It is calculated that the Israelites, though they increased very slowly while they were wandering in the land of Canaan, on settling in a fertile district of Egypt, doubled their numbers every fifteen years during the whole period of their stay.[1] But not to dwell on remote instances, the European settlements in America bear ample testimony to the truth of a remark that has never I believe been doubted. Plenty of rich land to be had for little or nothing is so powerful a cause of population as generally to overcome all obstacles.

No settlements could easily have been worse managed than those of Spain, in Mexico, Peru, and Quito. The tyranny, superstition, and vices of the mother country were introduced in ample quantities among her children. Exorbitant taxes were exacted by the crown; the most arbitrary restrictions were imposed on their trade; and the governors were not behindhand

[1] Short's New Observ. on Bills of Mortality, p. 259. 8vo. 1750.

in rapacity and extortion for themselves as well as their masters. Yet under all these difficulties, the colonies made a quick progress in population. The city of Quito, which was but a hamlet of Indians, is represented by Ulloa as containing fifty or sixty thousand inhabitants above fifty years ago.[1] Lima, which was founded since the conquest, is mentioned by the same author as equally or more populous before the fatal earthquake in 1746. Mexico is said to contain a hundred thousand inhabitants; which, notwithstanding the exaggerations of the Spanish writers, is supposed to be five times greater than what it contained in the time of Montezuma.[2]

In the Portuguese colony of Brazil, governed with almost equal tyranny, there were supposed to be, above thirty years ago, six hundred thousand inhabitants of European extraction.[3]

The Dutch and French colonies, though under the government of exclusive companies of merchants, still persisted in thriving under every disadvantage.[4]

But the English North-American colonies, now the powerful people of the United States of America, far outstripped all the others in the progress of their population. To the quantity of rich land which they possessed in common with the Spanish and Portuguese colonies, they added a greater degree of liberty and equality. Though not without some restrictions on their foreign commerce, they were allowed the liberty of managing their own internal affairs. The political institutions which prevailed were favourable to the alienation and division of property. Lands which were not cultivated by the proprietor within a limited time were declared grantable to any other person. In Pennsylvania there was no right of primogeniture; and in the provinces of New England the eldest son had only a double share. There were no tithes in any of the states, and scarcely any taxes. And on account of the extreme cheapness of good land, and a situation favourable to the exportation of grain, a capital could not be more advantageously employed than in agriculture; which, at the same time that it affords the greatest quantity of healthy work, supplies the most valuable produce to the society.

The consequence of these favourable circumstances united was a rapidity of increase almost without parallel in history. Throughout all the northern provinces the population was found to double itself in 25 years. The original number of persons which had

[1] Voy. d'Ulloa, tom. i. liv. v. ch. v. p. 229. 4to. 1752.
[2] Smith's Wealth of Nations, vol. ii. b. iv. ch. viii. p. 363.
[3] Id. p. 365.
[4] Id. p. 368, 369.

settled in the four provinces of New England in 1643 was 21,200. Afterwards it was calculated that more left them than went to them. In the year 1760 they were increased to half a million. They had, therefore, all along doubled their number in 25 years. In New Jersey the period of doubling appeared to be 22 years, and in Rhode Island still less. In the back settlements, where the inhabitants applied themselves solely to agriculture, and luxury was not known, they were supposed to double their number in fifteen years. Along the sea-coast, which would naturally be first inhabited, the period of doubling was about 35 years, and in some of the maritime towns the population was absolutely at a stand.[1] From the late census made in America, it appears that, taking all the states together, they have still continued to double their numbers within 25 years;[2] and as the whole population is now so great as not to be materially affected by the emigrations from Europe, and as it is known that, in some of the towns and districts near the sea-coast, the progress of population has been comparatively slow, it is evident that in the interior of the country in general the period of doubling from procreation only must have been considerably less than 25 years.

The population of the United States of America, according to the fourth census, in 1820, was 7,861,710. We have no reason to believe that Great Britain is less populous at present for the emigration of the small parent stock which produced these numbers. On the contrary, a certain degree of emigration is known to be favourable to the population of the mother country. It has been particularly remarked that the two Spanish provinces from which the greatest number of people emigrated to America became in consequence more populous.

Whatever was the original number of British emigrants which

[1] Price's Observ. on Revers. Paym. vol. i. p. 282, 283, and vol. ii. p. 260. I have lately had an opportunity of seeing some extracts from the sermon of Dr. Styles, from which Dr. Price has taken these facts. Speaking of Rhode Island, Dr. Styles says that, though the period of doubling for the whole colony is 25 years, yet that it is different in different parts, and within land is 20 and 15 years. The population of the five towns of Gloucester, Situate, Coventry, West Greenwich, and Exeter was 5033, A.D. 1748, and 6986, A.D. 1755; which implies a period of doubling of 15 years only. He mentions afterwards, that the county of Kent doubles in 20 years, and the county of Providence in 18 years.

[2] See an article in the Supplement to the Encyclopædia Britannica on Population, p. 308; and a curious table, p. 310, calculated by Mr. Milne, Actuary to the Sun Life Assurance Office, which strikingly confirms and illustrates the computed rate of increase in the United States, and shows that it cannot be essentially affected by immigrations.

increased so fast in North America, let us ask, Why does not an equal number produce an equal increase in the same time in Great Britain? The obvious reason to be assigned is the want of food; and that this want is the most efficient cause of the three immediate checks to population, which have been observed to prevail in all societies, is evident from the rapidity with which even old states recover the desolations of war, pestilence, famine, and the convulsions of nature. They are then for a short time placed a little in the situation of new colonies; and the effect is always answerable to what might be expected. If the industry of the inhabitants be not destroyed, subsistence will soon increase beyond the wants of the reduced numbers; and the invariable consequence will be, that population, which before perhaps was nearly stationary, will begin immediately to increase, and will continue its progress till the former population is recovered.

The fertile province of Flanders, which has been so often the seat of the most destructive wars, after a respite of a few years has always appeared as rich and populous as ever. The undiminished population of France, which has before been noticed, is an instance very strongly in point. The tables of Sussmilch afford continual proofs of a very rapid increase after great mortalities; and the table for Prussia and Lithuania, which I have inserted,[1] is particularly striking in this respect. The effects of the dreadful plague in London, in 1666, were not perceptible 15 or 20 years afterwards. It may even be doubted whether Turkey and Egypt are upon an average much less populous for the plagues which periodically lay them waste. If the number of people which they contain be considerably less now than formerly, it is rather to be attributed to the tyranny and oppression of the governments under which they groan, and the consequent discouragements to agriculture, than to the losses which they sustain by the plague. The traces of the most destructive famines in China, Indostan, Egypt, and other countries, are by all accounts very soon obliterated; and the most tremendous convulsions of nature, such as volcanic eruptions and earthquakes, if they do not happen so frequently as to drive away the inhabitants or destroy their spirit of industry, have been found to produce but a trifling effect on the average population of any state.

It has appeared from the registers of different countries, which have already been produced, that the progress of their population is checked by the periodical, though irregular, returns of plagues and sickly seasons. Dr. Short, in his curious researches into bills

[1] See p. 296.

of mortality, often uses the expression—" terrible correctives of the redundance of mankind; "[1] and in a table of all the plagues, pestilences, and famines of which he could collect accounts, shows the constancy and universality of their operation.

The epidemical years in his table, or the years in which the plague or some great and wasting epidemic prevailed (for smaller sickly seasons seem not to be included), are 431,[2] of which 23 were before the Christian era.[3] If we divide therefore the years of the present era by 399, it will appear that the periodical returns of such epidemics to some countries that we are acquainted with have been on an average only at the interval of about $4\frac{1}{2}$ years.

Of the 254 great famines and dearths enumerated in the table, 15 were before the Christian era,[4] beginning with that which occurred in Palestine, in the time of Abraham. If, subtracting these 15, we divide the years of the present era by the remainder, it will appear that the average interval between the visits of this dreadful scourge has been only about $7\frac{1}{2}$ years.

How far these " terrible correctives to the redundance of mankind " have been occasioned by the too rapid increase of population, is a point which it would be very difficult to determine with any degree of precision. The causes of most of our diseases appear to us to be so mysterious, and probably are really so various, that it would be rashness to lay too much stress on any single one; but it will not perhaps be too much to say, that *among* these causes we ought certainly to rank crowded houses and insufficient or unwholesome food, which are the natural consequences of an increase of population faster than the accommodations of a country with respect to habitations and food will allow.

Almost all the histories of epidemics which we possess tend to confirm this supposition, by describing them in general as making their principal ravages among the lower classes of people. In Dr. Short's tables this circumstance is frequently mentioned;[5] and it further appears that a very considerable proportion of the epidemic years either followed or were accompanied by seasons of dearth and bad food.[6] In other places he also mentions great plagues as diminishing particularly the numbers of the lower or servile sort of people;[7] and in speaking of different diseases he observes that those which are occasioned by bad and unwholesome food generally last the longest.[8]

[1] New Observ. on Bills of Mortality, p. 96.
[2] Hist. of Air, Seasons, etc., vol. ii. p. 366. [3] Id. 202.
[4] Id. p. 206. [5] Id. p. 206 et seq. [6] Id. p. 206 et seq. and 336.
[7] New Observ. p. 125. [8] Id. p. 108.

We know from constant experience that fevers are generated in our jails, our manufactories, our crowded workhouses, and in the narrow and close streets of our large towns; all which situations appear to be similar in their effects to squalid poverty; and we cannot doubt that causes of this kind, aggravated in degree, contributed to the production and prevalence of those great and wasting plagues formerly so common in Europe, but which now, from the mitigation of these causes, are everywhere considerably abated, and in many places appear to be completely extirpated.

Of the other great scourge of mankind, famine, it may be observed that it is not in the nature of things that the increase of population should absolutely produce one. This increase, though rapid, is necessarily gradual; and as the human frame cannot be supported, even for a very short time, without food, it is evident that no more human beings can grow up than there is provision to maintain. But though the principle of population cannot absolutely produce a famine, it prepares the way for one; and by frequently obliging the lower classes of people to subsist nearly on the smallest quantity of food that will support life, turns even a slight deficiency from the failure of the seasons into a severe dearth; and may be fairly said, therefore, to be one of the principal causes of famine. Among the signs of an approaching dearth, Dr. Short mentions one or more years of luxuriant crops together;[1] and this observation is probably just, as we know that the general effect of years of cheapness and abundance is to dispose a great number of persons to marry; and under such circumstances the return to a year merely of an average crop might produce a scarcity.

The small-pox, which may be considered as the most prevalent and fatal epidemic in Europe, is of all others, perhaps, the most difficult to account for, though the periods of its returns are in many places regular.[2] Dr. Short observes, that from the histories of this disorder it seems to have very little dependence upon the past or present constitution of the weather or seasons, and that it appears epidemically at all times and in all states of the air, though not so frequently in a hard frost. We know of no instances, I believe, of its being clearly generated under any circumstances of situation. I do not mean therefore to insinuate that poverty and crowded houses ever absolutely produced it; but I may be allowed to remark, that in those places where its returns are regular, and its ravages among children, particularly

[1] Hist. of Air, Seasons, etc., vol. ii. p. 367. [2] Id. vol. ii. p. 411.

among those of the lower class, are considerable, it necessarily follows that these circumstances, in a greater degree than usual, must always precede and accompany its appearance; that is, from the time of its last visit, the average number of children will be increasing, the people will, in consequence, be growing poorer, and the houses will be more crowded till another visit removes this superabundant population.

In all these cases, how little soever force we may be disposed to attribute to the effects of the principle of population in the actual production of disorders, we cannot avoid allowing their force as predisposing causes to the reception of contagion, and as giving very great additional force to the extensiveness and fatality of its ravages.

It is observed by Dr. Short that a severe mortal epidemic is generally succeeded by an uncommon healthiness, from the late distemper having carried off most of the declining and worn-out constitutions.[1] It is probable, also, that another cause of it may be the greater plenty of room and food, and the consequently meliorated condition of the lower classes of the people. Sometimes, according to Dr. Short, a very fruitful year is followed by a very mortal and sickly one, and mortal ones often succeeded by very fruitful, as if Nature sought either to prevent or quickly repair the loss by death. In general the next year after sickly and mortal ones is prolific in proportion to the breeders left.[2]

This last effect we have seen most strikingly exemplified in the table for Prussia and Lithuania.[3] And from this and other tables of Sussmilch, it also appears that, when the increasing produce of a country and the increasing demand for labour so far meliorate the condition of the labourer as greatly to encourage marriage, the custom of early marriages is generally continued, till the population has gone beyond the increased produce, and sickly seasons appear to be the natural and necessary consequence. The continental registers exhibit many instances of rapid increase, interrupted in this manner by mortal diseases; and the inference seems to be, that those countries where subsistence is increasing sufficiently to encourage population, but not to answer all its demands, will be more subject to periodical epidemics than those where the increase of population is more nearly accommodated to the average produce.

The converse of this will of course be true. In those countries

[1] Hist. of Air, Seasons, etc., vol. ii. p. 344.
[2] New Observ. p. 191. [3] Id. p. 500.

which are subject to periodical sicknesses, the increase of population, or the excess of births above the deaths, will be greater in the intervals of these periods than is usual in countries not so much subject to these diseases. If Turkey and Egypt have been nearly stationary in their average population for the last century, in the intervals of their periodical plagues, the births must have exceeded the deaths in a much greater proportion than in such countries as France and England.

It is for these reasons that no estimates of future population or depopulation, formed from any existing rate of increase or decrease, can be depended upon. Sir William Petty calculated that in the year 1800 the city of London would contain 5,359,000[1] inhabitants, instead of which it does not now contain a fifth part of that number. Mr. Eaton has lately prophesied the extinction of the population of the Turkish empire in another century,[2] an event which will certainly fail of taking place. If America were to continue increasing at the same rate as at present for the next 150 years, her population would exceed the population of China; but though prophecies are dangerous, I will venture to say that such an increase will not take place in that time, though it may perhaps in five or six hundred years.

Europe was without doubt formerly more subject to plagues and wasting epidemics than at present; and this will account, in a great measure, for the greater proportion of births to deaths in former times, mentioned by many authors; as it has always been a common practice to estimate these proportions from too short periods, and generally to reject the years of plague as accidental.

The average proportion of births to deaths in England during the last century may be considered as about 12 to 10, or 120 to 100. The proportion in France for ten years, ending in 1780, was about 115 to 100.[3] Though these proportions undoubtedly varied at different periods during the century, yet we have reason to think that they did not vary in any very considerable degree; and it will appear, therefore, that the population of France and England had accommodated itself more nearly to the average produce of each country than many other states. The operation of the preventive check—wars—the silent though certain destruction of life in large towns and manufactories—and the close habitations and insufficient food of many of the

[1] Political Arithmetic, p. 17.
[2] Survey of the Turkish Empire, c. vii. p. 281.
[3] Necker de l'Administration des Finances, tom. i. c. ix. p. 255.

poor—prevent population from outrunning the means of subsistence; and, if I may use an expression which certainly at first appears strange, supersede the necessity of great and ravaging epidemics to destroy what is redundant. If a wasting plague were to sweep off two millions in England, and six millions in France, it cannot be doubted that, after the inhabitants had recovered from the dreadful shock, the proportion of births to deaths would rise much above the usual average in either country during the last century.

In New Jersey the proportion of births to deaths, on an average of 7 years, ending with 1743, was 300 to 100. In France and England the average proportion cannot be reckoned at more than 120 to 100. Great and astonishing as this difference is, we ought not to be so wonder-struck at it, as to attribute it to the miraculous interposition of Heaven. The causes of it are not remote, latent, and mysterious, but near us, round about us, and open to the investigation of every inquiring mind. It accords with the most liberal spirit of philosophy to believe that no stone can fall, or plant rise, without the immediate agency of divine power. But we know from experience that these operations of what we call nature have been conducted almost invariably according to fixed laws. And since the world began, the causes of population and depopulation have been probably as constant as any of the laws of nature with which we are acquainted.

The passion between the sexes has appeared in every age to be so nearly the same, that it may always be considered, in algebraic language, as a given quantity. The great law of necessity which prevents population from increasing in any country beyond the food which it can either produce or acquire, is a law so open to our view, so obvious and evident to our understandings, that we cannot for a moment doubt it. The different modes which nature takes to repress a redundant population do not indeed appear to us so certain and regular; but though we cannot always predict the mode, we may with certainty predict the fact. If the proportion of the births to the deaths for a few years indicates an increase of numbers much beyond the proportional increased or acquired food of the country, we may be perfectly certain that, unless an emigration take place, the deaths will shortly exceed the births, and that the increase which had been observed for a few years cannot be the real average increase of the population of the country. If there were no other depopulating causes, and if the preventive check

did not operate very strongly, every country would without doubt be subject to periodical plagues and famines.

The only true criterion of a real and permanent increase in the population of any country is the increase of the means of subsistence. But even this criterion is subject to some slight variations, which however are completely open to our observation. In some countries population seems to have been forced; that is, the people have been habituated by degrees to live almost upon the smallest possible quantity of food. There must have been periods in such countries when population increased permanently without an increase in the means of subsistence. China, India, and the countries possessed by the Bedoween Arabs, as we have seen in the former part of this work, appear to answer to this description. The average produce of these countries seems to be but barely sufficient to support the lives of the inhabitants, and of course any deficiency from the badness of the seasons must be fatal. Nations in this state must necessarily be subject to famines.

In America, where the reward of labour is at present so liberal, the lower classes might retrench very considerably in a year of scarcity without materially distressing themselves. A famine therefore seems to be almost impossible. It may be expected that in the progress of the population of America the labourers will in time be much less liberally rewarded. The numbers will in this case permanently increase, without a proportional increase in the means of subsistence. In the different countries of Europe there must be some variations in the proportion of the number of inhabitants and the quantity of food consumed, arising from the different habits of living which prevail in each state. The labourers in the south of England are so accustomed to eat fine wheaten bread, that they will suffer themselves to be half starved before they will submit to live like the Scotch peasants.

They might perhaps, in time, by the constant operation of the hard law of necessity, be reduced to live even like the lower classes of the Chinese, and the country would then with the same quantity of food support a greater population. But to effect this must always be a difficult and, every friend to humanity will hope, an abortive attempt.

I have mentioned some cases where population may permanently increase without a proportional increase in the means of subsistence. But it is evident that the variation in different states between the food and the numbers supported by it is restricted to a limit beyond which it cannot pass. In every

country, the population of which is not absolutely decreasing, the food must be necessarily sufficient to support and continue the race of labourers.

Other circumstances being the same, it may be affirmed that countries are populous according to the quantity of human food which they produce or can acquire; and happy according to the liberality with which this food is divided, or the quantity which a day's labour will purchase. Corn countries are more populous than pasture countries, and rice countries more populous than corn countries. But their happiness does not depend either upon their being thinly or fully inhabited, upon their poverty or their riches, their youth or their age; but on the proportion which the population and the food bear to each other.

This proportion is generally the most favourable in new colonies, where the knowledge and industry of an old state operate on the fertile unappropriated land of a new one. In other cases the youth or the age of a state is not, in this respect, of great importance. It is probable that the food of Great Britain is divided in more liberal shares to her inhabitants at the present period than it was two thousand, three thousand, or four thousand years ago. And it has appeared that the poor and thinly-inhabited tracts of the Scotch Highlands are more distressed by a redundant population than the most populous parts of Europe.

If a country were never to be overrun by a people more advanced in arts, but left to its own natural progress in civilisation; from the time that its produce might be considered as an unit, to the time that it might be considered as a million, during the lapse of many thousand years, there might not be a single period when the mass of the people could be said to be free from distress, either directly or indirectly, for want of food. In every state in Europe, since we have first had accounts of it, millions and millions of human existences have been repressed from this simple cause, though perhaps in some of these states an absolute famine may never have been known.

Must it not then be acknowledged by an attentive examiner of the histories of mankind, that, in every age and in every state in which man has existed or does now exist,

The increase of population is necessarily limited by the means of subsistence:

Population invariably increases when the means of subsistence increase,[1] unless prevented by powerful and obvious checks:

[1] By an increase in the means of subsistence, as the expression is used

These checks, and the checks which keep the population down to the level of the means of subsistence, are moral restraint, vice, and misery?

In comparing the state of society which has been considered in this second book with that which formed the subject of the first, I think it appears that in modern Europe the positive checks to population prevail less and the preventive checks more than in past times, and in the more uncivilised parts of the world.

War, the predominant check to the population of savage nations, has certainly abated, even including the late unhappy revolutionary contests; and since the prevalence of a greater degree of personal cleanliness, of better modes of clearing and building towns, and of a more equable distribution of the products of the soil from improving knowledge in political economy, plagues, violent diseases, and famines have been certainly mitigated, and have become less frequent.

With regard to the preventive check to population, though it must be acknowledged that that branch of it which comes under the head of moral restraint,[1] does not at present prevail much among the male part of society, yet I am strongly disposed to believe that it prevails more than in those states which were first considered; and it can scarcely be doubted that in modern Europe a much larger proportion of women pass a considerable part of their lives in the exercise of this virtue than in past times and among uncivilised nations. But however this may be, if we consider only the general term which implies principally a delay of the marriage union from prudential considerations, without reference to consequences, it may be considered in this light as the most powerful of the checks which in modern Europe keep down the population to the level of the means of subsistence.

here, is always meant such an increase as the mass of the population can command; otherwise it can be of no avail in encouraging an increase of people.

[1] The reader will recollect the confined sense in which I use this term.

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